DEPARTMENT OF THE INTERIOR,

CENSUS OFFICE.

FRANCIS A. WALKER, Superintendent,
Appointed April 1, 1879; resigned November 3, 1881.

CHAS. W. SEATON, Superintendent,
Appointed November 4, 1881. Office of Superintendent abolished March 3, 1885.

REPORT

ON THE

MORTALITY AND VITAL STATISTICS

OF THE

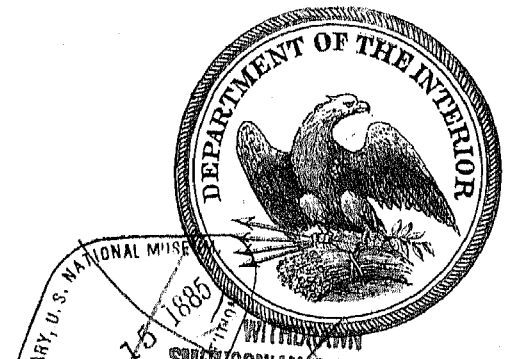
UNITED STATES

AS RETURNED AT THE TENTH CENSUS (JUNE 1, 1880),

BY

JOHN S. BILLINGS,
SURGEON U. S. ARMY.

PART I.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1885.

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., May 1, 1885.

Hon. L. Q. C. LAMAR,
Secretary of the Interior.

SIR: I have the honor to transmit herewith the eleventh and twelfth volumes of the quarto series comprising the final report on the Tenth Census, being the report on Mortality and Vital Statistics, by John S. Billings, LL. D., Surgeon U. S. Army, with accompanying tables.

Too much cannot be said in recognition of the great advantage which the census work has derived from the services of Doctor Billings. While, within his own corps, he has been building a monument to his learning and industry in the preparation of the colossal Index-Catalogue of Medical Literature, he has projected the entire scheme of compilation for the Mortuary Statistics of the Census, has supervised the work in all stages of its progress, and has subjected the results of these vast tabulations to a discriminating analysis and discussion.

I have the honor to be, very respectfully, your obedient servant,

JAMES H. WARDLE,
Chief of Census Division.

PART I.

MORTALITY AND VITAL STATISTICS.

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LETTER OF TRANSMITTAL.

WASHINGTON, D. C., *January* 6, 1885.

To the Superintendent of Census.

DEAR SIR: I have the honor to transmit herewith some comments upon the tables of vital statistics of the Tenth Census, which tables have been compiled in accordance with suggestions and advice which I have from time to time furnished during the course of the work.

These comments may be classified as follows:

I. Introductory and explanatory remarks.
II. General death rate.
III. Relations of sex to deaths.
IV. Relations of age to deaths.
V. Relations of color and race to deaths.
VI. Relations of month or season to deaths.
VII. Relations of locality or topography to causes of death.
VIII. Remarks on certain special causes of death.
IX. Morbility rates as indicated by the census.
X. Birth rates and life tables.
XI. Statistics of the living population.
XII. Recommendations for future work, and conclusion.

The greater part of the tables relating to deaths were prepared under the immediate superintendence of Mr. William A. King, to whom great credit is due for the energy and zeal which he displayed in the work, and for making them as accurate and complete as the data would permit. After the transfer of Mr. King to another office, the work was completed under the direction of Mr. C. S. Mixter, to whom, and to Mr. C. J. Myers, of the Surgeon-General's office, I am indebted for valuable aid in the making of computations, diagrams, etc. I am also indebted to Mr. Herman Hollerith for valuable assistance in the compilation of the life tables and diagrams illustrating them.

Very respectfully, your obedient servant,

JOHN S. BILLINGS,
Surgeon, U. S. Army.

SECTION I.—INTRODUCTORY AND EXPLANATORY REMARKS.

The fact that it is impossible, in any large community, to collect complete and reliable data with regard to births and deaths by means of an inquiry made only at the end of the year for which the data are desired, is well known to all who are practically familiar with the subject of vital statistics; and the experience of the United States census furnishes no exception to this rule. The results of each of the four censuses in which an attempt has been made to ascertain the number of persons who died in the United States during the preceding year, have shown that the enumerators did not obtain and record more than from 60 to 70 per cent. of the actual number of deaths; and the introductory remark to the statistics of mortality of the Ninth Census still holds good, viz: that "if the value of the statistics of mortality in a census of the United States, taken under existing laws, depended upon the return of substantially the whole body of deaths occurring during the year covered by the enumeration, the results would not be worth the space occupied by publication, much less the expense of collection and compilation". But, as the United States has no system of registration of vital statistics, such as is relied upon by all other civilized nations, for the purpose of ascertaining the actual movement of population, our census affords the only opportunity of obtaining even an approximate estimate of the birth and death rates of much the larger part of the country, which is entirely unprovided with any satisfactory system of state and municipal registration; and the data which the census gives, imperfect as they are, are the only ones by which we can compare the healthfulness of this with that of other countries, or can ascertain, even approximately, the relative salubrity, or liability to particular forms of disease, of different parts of our own territory.

An attempt has been made in the Tenth Census to obtain more complete returns of deaths than have heretofore been furnished, and also to make these returns more accurate as regards the reported causes of death.

For this purpose the voluntary co-operation of the medical profession of the country was solicited in accordance with the following plan. Early in the census year a small register of deaths, to be filled up by physicians, was prepared, which register contained twenty-four leaves, on each of which was printed the following form:

TENTH CENSUS OF THE UNITED STATES,
JUNE 1, 1879, TO MAY 31, 1880.

PHYSICIAN'S RETURN OF A DEATH.

PLACE OF DEATH:

State of....., county of .....
Town or district of .....

DATE OF DEATH:

....., 18 .

NAME OF DECEASED:

.....

Yrs. *Mos.*

Sex, ...; race or color, ...; age: ....
Date of birth, if known: ....., ..., 18 .
Occupation: .....

CAUSE OR CAUSES OF DEATH:*

.....
.....
.....
Was a *post-mortem* held? .....

NAME OF PHYSICIAN:

.....

*INSTRUCTIONS.—Under "cause or causes of death" insert remote, immediate, and concurring causes. For instance: insert "measles and pneumonia", or "difficult labor, peritonitis, and septicæmia", or "scarlet fever, nephritis, dropsy, and coma", in cases presenting these phenomena.

☞ If the true cause of death *is not certainly known*, insert names of symptoms with a cross, thus: "Convulsions and coma ×; paralysis of the heart ×," etc.

A copy of this register, with a stamped envelope for its return at the end of the census year, was sent to every one in the United States who was reported by his or her postmaster to be a physician, or to be addressed as such.

The following table shows by states the number of these registers issued, and the number returned to the Census Office at the close of the year:

States and Territories.	PHYSICIANS' REGISTERS.		States and Territories.	PHYSICIANS' REGISTERS.		States and Territories.	PHYSICIANS' REGISTERS.	
	Sent out.	Returned.		Sent out.	Returned.		Sent out.	Returned.
THE UNITED STATES...	70,299	25,809						
			Kansas	1,851	620	New York	4,484	2,414
Alabama	1,778	456	Kentucky	2,817	929	North Carolina	1,706	476
Arizona	58	16	Louisiana	832	239	Ohio	4,756	1,851
Arkansas	2,031	689	Maine	808	280	Oregon	377	111
California	984	344	Maryland	995	441	Pennsylvania	4,661	2,342
Colorado	307	79	Massachusetts	1,557	706	Rhode Island	175	95
Connecticut	861	313	Michigan	2,573	674	South Carolina	1,082	339
Dakota	249	47	Minnesota	822	239	Tennessee	3,130	1,082
Delaware	177	55	Mississippi	1,817	463	Texas	2,507	847
District of Columbia	165	66	Missouri	3,829	1,561	Utah	175	59
Florida	460	125	Montana	26	22	Vermont	617	171
Georgia	2,024	496	Nebraska	697	227	Virginia	2,199	674
Idaho	55	11	Nevada	115	30	Washington	140	25
Illinois	4,673	2,003	New Hampshire	601	216	West Virginia	1,101	343
Indiana	4,507	1,630	New Jersey	1,253	502	Wisconsin	1,327	452
Iowa	2,730	1,028	New Mexico	81	13	Wyoming	30	9

At the same time that these registers were sent out, appeals were made through the press, the various medical associations, etc., to the medical profession, explaining what was desired, and earnestly requesting co-operation and aid, both in filling up and forwarding these registers of death, and in correcting, so far as relates to reports of causes of deaths, the returns of the enumerators when presented to physicians for that purpose. At the end of the census year the registers collected at the Census Office, after being duly arranged by localities, were examined by a skilled physician, who indicated upon each slip the name of the cause of death to be used in tabulation.

Very few of these registers were in such a condition that they could not be used for statistical purposes, although as a matter of course some of the causes of death could only be classified as *unknown*. This had been foreseen, and there was an implied permission that physicians might use such terms as "paralysis of the heart", "apnœa", etc., which are equivalent to "unknown", it being evidently much better that they should do this than that the cause of death should be merely guessed at.

In certain large cities, where a complete system of registration of deaths based on burial permits is in operation, no schedules of deaths were taken by the enumerators, the records being obtained from the central registration offices; and the small registers above referred to, received from physicians in these cities, were not used in making up the statistics.

The number classified as unknown out of a total of 166,896 deaths reported by physicians from rural districts was 4,162, being 25 per 1000. It will be well to remember this percentage of unknown causes as occurring in physicians' returns. The number of post-mortems made in this number of deaths was 3,555, or 21 per 1000. When the examination and checking of these registers was completed they were taken apart, and, as each leaf formed the record of a single case, the collection could then be used in the same manner as the cards in a card catalogue, and readily assorted and classified in various ways.

The number of deaths returned by physicians upon these registers could have no definite relation to the actual number of deaths which occurred in any given locality, and still less to the number of living population in that locality, since the filling out these registers was an entirely voluntary matter on the part of physicians, and, as a matter of fact, only 37 per cent. of those registers sent out were returned. The total number of deaths thus reported by physicians and compiled was 166,896, of which 61,020 were found not to have been reported by the enumerators.

While the results obtained from these physicians' returns are of interest and value, it must be constantly borne in mind that they were not derived solely from competent medical men, but from all those who chose to call themselves physicians.

When a cause of death is reported as "Tecis", "Spinalgitis," "Colory in Phantum," "Colria fontim," "Cholor Rhear Infantum," "Hasphmar," "New Money fever," "No fisian tendin," "Struck in on the aire sells," "Yaller ganders of the Liver," "Unnowing," "Know Knowen cause," etc., it is evidently unsafe to lay too much stress on the scientific accuracy of the diagnosis by the same reporter in other cases, even although the spelling may be more nearly correct.

The schedules of deaths, or as they were more commonly termed, "The mortality schedules", which were filled out and returned by the enumerators, were ruled in columns having the following headings, viz:

Number of the family as given in column numbered 2, schedule 1.	Name of the person deceased.	PERSONAL DESCRIPTION.			WHAT WAS THE CIVIL CONDITION OF THE PERSON WHO DIED?			NATIVITY.			Profession, occupation or trade (not to be asked in respect to persons under 10 years of age).	The month in which the person died.	Disease or cause of death.	How long a resident of the county? If less than 1 year, state months in fractions, thus—$\frac{3}{12}$.	If the disease was not contracted at place of death, state the place.	Name of attending physician.
		Age at last birthday. If under 1 year, give months in fractions, thus—$\frac{3}{12}$. If under 1 month, give days in fractions, thus—$\frac{5}{30}$.	Sex—Male (M). Female (F).	Color—White (W). Black (B). Mulatto (Mu). Chinese (Ch). Indian (I).	Single /.	Married /.	Widowed /. Divorced, D.	Place of birth of this person, naming the state or territory of the United States, or the country, if of foreign birth.	Where was the father of this person born? (as in column 9).	Where was the mother of this person born? (as in column 9).						
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.

It will be perceived that in addition to the information called for on the schedules used in 1870, those of 1880 contain the place where the father and mother of the decedent were born; the length of his residence in the county; the place where the disease was contracted, if not in the county; and the name of the attending physician. They also contain two supplementary schedules, one giving the names of those who died in the place, but who belonged to families living in another county or state, and a second giving the names of persons belonging to families residing in the place, but who have died away from home in another county or state.

For the states of Massachusetts and New Jersey, the District of Columbia, and the following-named cities, viz: Baltimore, Brooklyn, Charleston, Chicago, Cincinnati, Cleveland, Indianapolis, Louisville, Milwaukee, Nashville, New Orleans, New York, Philadelphia, Pittsburgh, Providence, Richmond, San Francisco, Saint Louis, and Wilmington, the state and municipal registration records of deaths were copied and are used in the tabulations instead of the enumerators' schedules. These state and municipal registration records are based on a system of burial permits, and are therefore probably very nearly accurate. This fact should be borne in mind in comparing the reported mortality in these with that of other localities. These complete reports are also used to make an approximate estimate of the amount of deficiency in the enumerators' returns and for certain special tabulations, as will be explained hereafter.

It needs but a slight examination of the tables of vital statistics published by various countries, to show that very little uniformity exists in the plans heretofore adopted by vital statisticians for the presentation of their data, and it certainly seems highly desirable that there should be some substantial agreement as to the forms of these tables. It may be said that, since the returns of the number of deaths for the census are so incomplete, it is not worth while to attempt minute classification of the data, and that it is especially a waste of effort to prepare any tables showing the relations of total numbers of deaths to locality, to population, or to the month of death—that is, to attempt to prepare mortality rates, properly so called, for different localities. If we consider only the results to be obtained by the tabulation of the figures derived from the present census, there would be much force in this objection, and it certainly would not have been worth while to prepare all the tables herewith presented; but it must be remembered that the forms of tabulation to be adopted in this census will be followed to a certain extent in other tabulations to be made hereafter, and for which we have good reason to hope much more complete data will be furnished, and this is especially the case with regard to the state censuses which are to be taken in 1885. It should be borne in mind, therefore, that a certain proportion of the following tables have been prepared, not so much with reference to the value of the conclusions which may be drawn from them, as to serve as an indication of the manner in which the work should be done when complete data are obtainable.

The several factors or circumstances to be considered in studying death statistics are as follows:

1. Locality.
2. Mean population in the middle of the census year.
3. Living population at the end of the year, *i. e.*, population as shown by the census, or survivors.
4. Number of deaths during the year.
5. Number of births during the year.
6. Sex.
7. Age.
8. Color and race.
9. Cause of death.
10. Month of death.
11. Occupation.
12. Civil or conjugal condition.

In tabulating the deaths the object is to find the relations of each of the above factors, and of their combinations, to the number of deaths. As a rule not more than five factors can enter into each table; and, bearing in mind that some of these factors, such as locality, age, cause of death, and occupation, should be divided into a large number of subfactors, it will be seen that to present the facts collected on the death schedules in all their relations to each other, and to the corresponding groups of facts collected on the population schedules, is practically impossible.

We must therefore make a selection of the combinations to be presented in the form of tables. This selection has been governed by the following considerations:

I.—They should be so arranged as to be comparable with the data given in preceding United States censuses and, so far as possible, with the published mortality statistics of the several states and of other countries.

II.—They should be comparable with the data given in the tabulations of the living population.

III.—They must be brought within reasonable limits as to space and as to cost of compilation.

IV.—The object is rather to present the data in such form that they shall be available to physicians, sanitarians, and others engaged in researches in which they are most likely to be of interest, than to attempt to draw conclusions from them in the report itself. It is, of course, desirable to present so far as possible such tables of ratios and proportions as will enable the student to make comparisons without undergoing the labor of making computations, and a certain amount of work has been done in this direction, as will be seen in the second part; but as the amount of available clerical force was limited, it was deemed better to present the data as completely as possible and to make the study of these data a secondary matter.

In previous censuses the unit of locality used has been the state or territory. As these are political divisions only, not corresponding to the topographical features of the country, and are, moreover, much too large to permit of many interesting and useful comparisons which should be made, it was determined to take the county as the unit. But as there are 2,605 counties in the United States, it was impossible to give, for each county, tables showing the relations of each cause of death to sex, age, etc., since this would have increased the expense of compilation and publication beyond reasonable limits, and the numbers for the great majority of counties would have been too small to permit of any useful deductions. It was therefore decided to give, for the county, only the total mortality at certain groups of ages and the number of deaths from a few diseases of special interest, and to do this only for counties having a population of 10,000 or upward.

More elaborate compilations were made for groups of counties within the limits of each state, and which may be called State Groups. The compilations for these groups can evidently be consolidated by states, so as to be comparable with the tables of previous censuses or with state registration statistics, past or future, or they can be combined into what may be called Grand Groups, whose boundaries are determined by topographical peculiarities and not by state lines. The selection of the counties to form these several groups was made by Mr. Henry Gannett, the geographer of the census, whose description of the characteristics of each group is embodied in a subsequent part of this report.

The following shows for each grand group the population, with distinction of sex; and, for certain grand groups, of color; the state groups composing each grand group, and the 50 large cities which have been separately tabulated, are also shown. The counties forming the several state groups are given in the Appendix (pp. xlix–lxiii of the Introduction).

Grand groups.			Population.	State groups.	Large cities.
GRAND GROUP 1—Total			2,616,870	Maine 1, New Hampshire 1, Massachusetts 1, Rhode Island, Connecticut 1.	Boston, Cambridge, Fall River, Lawrence, Lowell, Lynn, Providence, and New Haven.
(North Atlantic Coast region)		M.	1,265,273		
		F.	1,351,597		
GRAND GROUP 2—Total			4,376,135	New York 1, New Jersey 1, Maryland 1, Delaware, District of Columbia, Virginia 1.	Brooklyn, New York, Camden, Jersey City, Newark, Baltimore, Wilmington, and Washington.
(Middle Atlantic Coast region)	White	M.	1,899,114		
		F.	1,958,389		
	Colored	M.	251,223		
		F.	267,409		
GRAND GROUP 3—Total			875,086	North Carolina 1, South Carolina 1, Georgia 1	Charleston.
(South Atlantic Coast region)	White	M.	193,705		
		F.	195,792		
	Colored	M.	236,946		
		F.	248,643		
GRAND GROUP 4—Total			1,056,034	Florida Alabama 1, Louisiana 1, Mississippi 1, Texas 1.	New Orleans.
(Gulf Coast region)	White	M.	307,786		
		F.	300,053		
	Colored	M.	220,601		
		F.	227,594		

Grand groups.			Population.	State groups.	Large cities.
GRAND GROUP 5—Total			1,699,229	Maine 2, New Hampshire 2, Vermont, Massachusetts 2, Connecticut 2, New York 2.	Worcester and Hartford.
(Northeastern Hills and Plateaus)		M.	831,940		
		F.	837,289		
GRAND GROUP 6—Total			2,344,089	New York 3, New Jersey 2, Pennsylvania 1, Maryland 2.	Paterson and Scranton.
(Central Appalachian region)		M.	1,178,833		
		F.	1,165,256		
GRAND GROUP 7—Total			3,040,402	New York 4, Ohio 1, Michigan 1, Indiana 1, Illinois 1, Wisconsin 1.	Buffalo, Rochester, Cleveland, Toledo, Detroit, Chicago, and Milwaukee.
(Region of the Great Northern Lakes)		M.	1,560,867		
		F.	1,488,535		
GRAND GROUP 8—Total			5,734,683	New York 5, Pennsylvania 2, Virginia 2, North Carolina 2.	Albany, Syracuse, Troy, Allegheny City, Philadelphia, Pittsburgh, Reading, and Richmond.
(The Interior Plateau)	White	M.	2,466,676		
		F.	2,523,011		
	Colored	M.	354,712		
		F.	369,384		
GRAND GROUP 9—Total			2,657,658	Virginia 3, West Virginia 1, North Carolina 3, South Carolina 2, Kentucky 1, Tennessee 1, Georgia 2, Alabama 2.	
(Southern Central Appalachian region.)	White	M.	1,127,421		
		F.	1,136,999		
	Colored	M.	214,604		
		F.	218,844		
GRAND GROUP 10—Total			2,440,339	Ohio 2, Indiana 2, West Virginia 2, Kentucky 2.	Cincinnati, Dayton, and Louisville.
(The Ohio River Belt)	White	M.	1,158,590		
		F.	1,143,322		
	Colored	M.	68,743		
		F.	69,684		
GRAND GROUP 11—Total			3,625,545	South Carolina 3, Georgia 3, Alabama 3, Mississippi 2, Tennessee 2.	
(Southern Interior Plateau)	White	M.	820,979		
		F.	832,117		
	Colored	M.	974,229		
		F.	998,220		
GRAND GROUP 12—Total			710,250	Kentucky 3, Tennessee 3, Mississippi 3, Louisiana 2, Arkansas 1.	
(South Mississippi River Belt)	White	M.	131,830		
		F.	118,866		
	Colored	M.	232,143		
		F.	227,711		
GRAND GROUP 13—Total			1,990,917	Missouri 1, Iowa 1, Illinois 2, Wisconsin 2, Minnesota 1.	Saint Louis, Minneapolis, and Saint Paul.
(North Mississippi River Belt)		M.	1,033,633		
		F.	957,284		
GRAND GROUP 14—Total			2,932,676	Missouri 2, Arkansas 2, Louisiana 3, Texas 2.	
(Southwest Central region)	White	M.	1,203,904		
		F.	1,087,878		
	Colored	M.	310,907		
		F.	320,837		
GRAND GROUP 15—Total			4,403,662	Ohio 3, Kentucky 4, Tennessee 4, Indiana 3	Columbus, Nashville, and Indianapolis.
(Central region, plains and prairies.)	White	M.	2,031,042		
		F.	1,961,110		
	Colored	M.	203,326		
		F.	208,175		
GRAND GROUP 16—Total			5,721,836	Missouri 3, Iowa 2, Illinois 3, Kansas 1, Nebraska 1, Wisconsin 3, Minnesota 2, Dakota 1.	
(The Prairie region)		M.	2,997,609		
		F.	2,724,227		
GRAND GROUP 17—Total			835,694	Missouri 4, Iowa 3, Nebraska 2, Dakota 2	Kansas City.
(Missouri River Belt)		M.	448,108		
		F.	387,586		
GRAND GROUP 18—Total			324,268	Dakota 3, Montana 1, Wyoming 1, Nebraska 3, Kansas 2, Colorado 1, New Mexico 1, Texas 3.	Denver.
(Region of the Western Plains)		M.	190,732		
		F.	133,536		
GRAND GROUP 19—Total			1,123,419	Michigan 2, Wisconsin 4, Minnesota 3.	
(Heavily-timbered region of the Northwest.		M.	594,991		
		F.	528,428		

Grand groups.	Population.	State groups.	Large cities.
GRAND GROUP 20—Total	931,910	Montana 2, Washington 1, Wyoming 2, Idaho, Oregon 1, Colorado 2, Utah, Nevada, California 1, Arizona, New Mexico 2.	
(Cordilleran region) { M.	586,445		
(Cordilleran region) { F.	345,465		
GRAND GROUP 21—Total	715,781	California 2, Oregon 2, Washington 2	San Francisco and Oakland.
(Pacific Coast region) { M.	412,968		
(Pacific Coast region) { F.	302,813		

The objections to using the state as a unit of area were clearly perceived by Dr. Jarvis, who had charge of the tabulation of the mortality statistics of the census of 1860, and instead of giving his data by individual states he divided the whole territory into nine large districts, in which an attempt was made to arrange the statistics according to their geographical condition and climatic character. These districts were as follows:

I.—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York.
II.—Michigan, Wisconsin, Minnesota, and Nebraska.
III.—New Jersey and Pennsylvania.
IV.—Ohio, Illinois, Indiana, Iowa, and Kansas.
V.—Delaware, Maryland, District of Columbia, Virginia, and North Carolina.
VI.—Kentucky, Tennessee, and Missouri.
VII.—South Carolina, Georgia, Florida, and Alabama.
VIII.—Mississippi, Louisiana, Arkansas, and Texas.
IX.—California, Oregon, Washington, New Mexico, Utah, Dakota, and Nevada.

In addition to the tabulations by counties, state groups, states, and grand groups, the reports of deaths in 50 of the largest cities have been compiled separately in order to show some of the differences existing between urban and rural mortality, more especially as to prevalent causes and distribution of age.

The interest taken by the public at large in vital statistics is mainly in regard to the comparative healthfulness of different localities, and the smaller the unit of area the greater is the interest of the inhabitants in such comparisons. Men care little or nothing about the death rate in the United States, or in individual states, but that of their own county or town may be a matter of considerable interest to them.

Unfortunately, even if the data were accurate and complete, it is by no means easy to make comparisons which shall not be misleading, and from the imperfect data furnished by the census the matter is still more difficult.

If, however, we consider this question of the relative mortality of different localities from a sanitary standpoint, that is, with reference to ascertaining, as far as possible, the principal causes of death in a given locality, and especially those which may be considered as the preventible causes, these census statistics will be found to have a very considerable value. While the variations in the death rate between different localities depend to a certain extent on the proportions of the different sexes and ages present, yet the variations due to these are not so great but that they can be readily taken into account for sanitary purposes.

It is also possible that for many localities, from the data given, we may estimate the true mortality within 3 per 1000. While this is a wide limit of error, indicating much incompleteness in the data, it is well to remember that all mortality statistics give probabilities only, and that the proper expression for them is not a fixed number, or mathematical line, but the limits of variation between two numbers, or a shaded band instead of a line. To obtain an absolutely accurate result from a comparison of vital statistics requires completeness, accuracy, and correspondence of the individual data from which they are built up, to an extent which is, as yet, unattainable, although in very large masses of data it is true that the individual errors tend to neutralize each other.

The agencies to which great differences in mortality between different localities are chiefly due are: I, Poverty; II, Age distribution of the living population; III, Density of population; IV, Race; V, Meteorological conditions; VI, Epidemics. These agencies are to a considerable extent coterminous, and it is usually very difficult, and often impossible, to distinguish the influence which each has had in producing the final result.

In the tables given in this part of the reports of the census we can only compare directly with each other, and with other countries having regular systems of registration, the mortality rates for those states and cities enumerated on p. xiii for which the data were copied from registration records, but we can obtain from them for all localities some information as to the relative prevalence of certain causes of death, and of the relative mortality which these produce in the different sexes, races, and at various ages, the prevalence of epidemics, etc.

An agency of great importance affecting the mortality of certain localities in the United States is migration. The population is constantly shifting, and even within the limits of a single year very considerable changes take place in the units of the population of certain localities. Persons who have contracted consumption or typhoid fever or malarial fever in one place die in another, and very often quite a remote locality. While it is, of course, impossible to correct all the errors due to this source, it was intended that something should be done by means of the column in the mortality schedule marked 15: "How long a resident of the county;" but unfortunately it has not been possible with the clerical force available to make use of the data contained in this column.

In concluding these introductory remarks I would reiterate what has been said above, viz, that an attempt has been made to so arrange the data in the tables that those who wish to study the effects of locality, sex, age, etc., upon the health of the people, will find the materials presented in such a form as to facilitate their work, so far as such work is worth while, or even possible, considering the great deficiencies which, as has been stated, exist in the figures. These remarks are not intended for skilled statisticians, but rather for those who have no special familiarity with this class of work, and who are liable to draw extremely erroneous conclusions if they use the figures actually given without making the necessary corrections and allowances.

The true value and significance of the general death rate, that is, the mortality from all causes in a given population, as a test of the sanitary condition of the environment, has been much discussed of late years by health officers and others interested in sanitary matters. No small part of the conflicting opinions which have been given on this point depends on variations in the meaning of the phrase "sanitary condition" as used not only by different writers, but by the same writer in different parts of the same article. At one time "sanitary condition" is used to signify the influence of the environment with reference to its tendency to produce disease and death. At other times it is used simply to signify the comparative cleanliness of a place. It seems to me that it is better to use the term "sanitary condition" to indicate those circumstances of the environment which tend to produce disease and death, and which, at the same time, can be modified by human effort; thus distinguishing it from healthfulness on the one hand, and from cleanliness on the other.

It has been frequently pointed out that the death rate is affected by certain influences which have no special connection with the condition of the environment, such, for example, as the proportion of the sexes and of various ages present in the community. The death rate is also affected by the birth rate, although it is not true, as is very commonly asserted by those who have not investigated the subject, that a high birth rate produces a high death rate, since, after it has acted for a certain length of time, its tendency is to produce precisely the reverse, as it develops a population relatively largely composed of the younger groups of ages, in which the mortality is, as a rule, the least. The general death rate is also affected by migrations of the population, and this factor is an especially powerful one in this country.

In examining mortality statistics of a given locality for a given time, say for one year, which is the usual unit, we may do so for the purpose of comparing this mortality with that of the same locality for another given period of time, or for comparing it with that of other localities for the same or different periods, or for comparing it with an assumed normal or average mortality derived from the general experience of many localities extended over a comparatively considerable interval of time. For reasons before stated, the data derived from the United States census are too imperfect to admit of the comparison of the mortality of the whole country for the census year with that of any preceding census year, or with that of other countries.

The first attempt to obtain the deaths throughout the United States for one year was made in the census of 1850, and the results were published in an octavo volume of 304 pages, being Executive Document No. 98 of the House of Representatives of the Thirty-third Congress, second session, printed in 1855. This volume is now comparatively rare, and not easily accessible to those remote from large libraries.

The unit of area selected for use in these tables was either a state or some portion of a state. For each of these units of area a table is given showing the number of deaths from about one hundred different causes, with distinction of age and sex, nativities, season of decease, and color.

The tabulation of the mortality statistics of 1860 was made under the direction of Dr. Edward Jarvis, of Dorchester, Massachusetts. Dr. Jarvis recognized clearly that the returns were deficient, and that not only was the number of deaths greater than that reported, but that there was no means of determining the amount of deficiency. Comparisons made by him between the mortality statistics of 1850 and 1860 showed that while there were wide differences in the details for the several states for the two censuses, yet there was a substantial agreement in the general results, which Dr. Jarvis considered to indicate that the probable average of mortality, or the average of diligence on the part of the marshals, was about the same in both years. Dr. Jarvis arranged the primary facts in general tables, in which, so far as causes of death were given, their names were arranged alphabetically and in accordance with no system of classification. From these original data he proceeded to compile tables showing the proportionate force of mortality from each cause, and in these tables the names of the causes of death were arranged in classes in accordance with the system adopted in 1850. The unit of area made use of in the tables of this census was either the state or groups of states. In the census of 1870 the unit of area was the state, and the data obtained were tabulated without any attempt at making corrections or drawing special conclusions. It will be seen, therefore, that it is useless to attempt to draw any conclusions from a comparison of the different mortality rates deduced or deducible from the data of the three preceding censuses with those of the Tenth Census, so far as the whole population of the United States or of any individual state is concerned. We may, however, compare the proportion of deaths from different diseases and at different ages of these four censuses, and also compare these with those of other countries and obtain thereby some interesting results, but in doing this certain things must be borne in mind, or extremely erroneous conclusions will be reached.

In comparing the relative frequency of certain causes of death to the whole number of deaths in different localities, it must be remembered that the relative frequency of certain causes of death depends very largely upon

the proportion of different groups of age and sex in the population exposed to these causes; and the same is also to be borne in mind in making a comparison of the different groups of ages as compared with the whole number of deaths reported. Many sanitarians are accustomed to judge of the healthfulness of different localities by a comparison of the ratios of the deaths among infants or among children under 5 years of age to the total mortality in these respective localities; yet it is very evident that unless the proportion of infants and children to the total population exposed is the same in these localities, this mode of calculation may give misleading results. It is also extremely important in drawing deductions from the following tables to bear in mind the influence of what is commonly called the law of large numbers. The larger the figures in any group selected for comparison, whether it be by localities, by ages, for individual diseases, or any combination of these, the greater is the probability that the ratios derived from these are correct.

As Dr. Guy remarks: "In using small numbers of facts to establish data for reasoning or standards of comparison we are bound to speak with diffidence of their sufficiency, and we ought to regard them rather in the light of probabilities requiring to be strengthened by other probabilities, as weak arguments required to be supported by additional reasons, than as in themselves worthy of great reliance."

According to this view of the case we are not precluded from the use of averages drawn from small numbers of facts, for, although they are subject to a considerable amount of possible error, there is always such a probability of their coinciding with, or not differing widely from, the true average, as to justify their employment as standards of comparison and data for reasoning.

Every one can understand that the smaller the number of observations the greater the probable error in the ratios derived from them, since the greater is the effect of the variation in the numbers upon these ratios.

For example, in three groups of 50 persons taken at random, it is not only possible, but quite probable, that the number of deaths during a year will be for one group, 2; for another, 1, and for the other, none, representing, respectively, a mortality of 4 per cent., 2 per cent., and nothing, and yet that these great differences in the ratios shall really indicate nothing as to the relative healthfulness or liability to death of the members of the several groups.

On the other hand, in three groups containing 50,000 persons, each of like distribution of age, sex, and occupation, a variation of as large as 5 per 1000 in the annual mortality rate would indicate that the conditions were not equally favorable to health and life in the several groups.

One of the first points to be considered by those who use the figures in these tables for purposes of calculation is, what is the limit of probable error in the groups of figures to be used so far as this depends upon the number of observations? The simplest formula for this purpose, so far as regards the number of deaths in a given population, is to take the mean probable error as equal to the square root of the number of deaths.

In other cases, where it is proposed to make a comparison of the relative frequency of two events which are mutually exclusive, as, for instance, the proportion of males to females in the number of births occurring in a given locality, the well-known formula of Poisson may be used, viz, that the possible error is twice the square root of 2 into m, into n, divided by μ^3, $\left(\pm 2\sqrt{\frac{2m \times n}{\mu^3}}\right)$, in which m represents the number of times that the event a has happened, n the number of times that the event b has happened, and μ the total number of events.

As a general rule it may be said that the figures given in these volumes are more valuable for suggesting inquiries than for answering them, yet the more I compare them with those of other countries the more I have become satisfied that they are valuable for both purposes if properly used.

SECTION II.—GENERAL DEATH RATE.

Table II shows the number of deaths by states and territories, with distinction of sex, and also the number of deaths per 1000 of living population, at the dates of the three censuses of 1860, 1870, and 1880, for the United States and for each state and territory.

The total number of deaths recorded and tabulated for 1880 is 756,893, giving a death rate of 15.09 per 1000 of living population at the date of the census, the corresponding rate for 1870 being 12.77, and for 1860, 12.54. This apparent increase in the death rate is not to be taken as necessarily indicating an actual increase in the number of deaths in proportion to the living population during the census year of 1880, but rather as indicating that the efforts made in the last census to obtain more complete returns of deaths than had been collected in previous enumerations have been to some extent successful. Nor can the different ratios of deaths per 1000 of population for the several states in Table II be considered as indicating the relative healthfulness of the several states. This table is, in fact, little more than a convenient summary of the population and the number of deaths recorded in each state, being a continuation of similar tables in the preceding census report. Still less is it possible to make

useful comparisons of these death rates with those of other countries. They are in every case too small, for two reasons: The first is the failure to record all the deaths which occurred during the census year; the second is that the calculations are based, not on the mean population of the year, that is to say, the number of living persons who actually furnished this number of deaths, but upon the number of survivors at the end of the year, which is greater than that of the mean population, and therefore gives a less death rate. With the exception of the life-table computations, to be referred to hereafter, all the calculations of death rates in this report and in the tables are based on the number of survivors at the end of the year instead of taking the mean population, as is the rule in the statistics of other countries. This course has been pursued, first, because it has been the course taken in previous censuses, and to permit a comparison of the results with them it was desirable that the computations should be made in the same way; second, because on account of the great and varying migrations of population within the limits of the country, it is impracticable to calculate with any accuracy the mean population of a single state or territory for any given year; and, third, because the amount of error resulting from taking the surviving instead of the mean population is so small in comparison to the errors of omission, that it would not be worth while to undergo the expense of having the mean population computed. This will be seen by comparing the results obtained from the two methods of computation as applied to the whole of the United States. If we suppose the increase in the population of the United States from 1870 to 1880 to have taken place in geometrical progression (which, however, is not strictly the case, owing to the disturbances of the natural law of increase by immigration), we shall find that the population of the country on December 1, 1879, was in round numbers 49,500,000, and taking this number as the mean population for the census year, the death rate according to the figures recorded would be 15.29 per 1000 instead of 15.09, as calculated from the surviving population. In other words, the difference is only two-tenths of one in 1000.

Excluding the states of Massachusetts and New Jersey, the District of Columbia, and also the following named cities: Baltimore, Brooklyn, Charleston, Chicago, Cincinnati, Cleveland, Indianapolis, Louisville, Milwaukee, Nashville, New Orleans, New York, Philadelphia, Pittsburgh, Providence, Richmond, San Francisco, Saint Louis, and Wilmington, the number of deaths actually reported by the enumerators was 517,228. To these returns of deaths furnished by the enumerators there were added from registers furnished by physicians 61,020 additional cases of death. For the states of Massachusetts and New Jersey, the District of Columbia, and the cities above mentioned the state and municipal registration records of deaths were copied and used in the tabulations. These records are based on a regular system of registration and on burial permits, and are therefore probably very nearly accurate; they give 178,645 deaths.

In order to obtain some positive data from which might be calculated the amount of deficiency in the enumerators' returns of deaths, their returns for the state of Massachusetts, excluding the city of Boston, and for the whole state of New Jersey, have been tabulated and compared with the records furnished from the state registration offices, the total deficiency in which is considered not to exceed 2 per cent. The result of this comparison is that for the state of Massachusetts, excluding Boston, the deficiency in the enumerators' returns amounts to 26.63 per cent. of the whole number returned by them. For the state of New Jersey the deficiency in the enumerators' returns is 36.50. The deficiency is greatest in the case of infants, of females, and of foreigners, and increases in a tolerably uniform ratio for each month, going backward in time from the date of taking the census. It is also greatest in the more thinly settled sections of the country.

If we take the enumerators' returns as corrected by the addition of cases obtained from physicians' registers, viz, 2,320 for Massachusetts and 1,842 for New Jersey, the deficiencies thus corrected amount to 13.34 per cent. of the corrected returns for Massachusetts and 20.14 per cent. for New Jersey.

If we suppose that after the addition of the 61,020 cases of deaths reported by physicians to the returns of the enumerators, these last, excluding the states and cities above mentioned, are still deficient as much as 30 per cent., which is believed to be the maximum, the result will be an average annual mortality for the whole country of 18.08 per 1000 of surviving population.

It seems safe to assume that the death rate was not less than 17 nor more than 19 per 1000 of living population, and I shall assume the mean of these, viz, 18 per 1000, as the mortality rate of the United States during the census year.

The probability of the correctness of this estimate may perhaps be judged somewhat from the following considerations:

The Bureau of Statistics gives the number of immigrants arriving in the United States for the ten years ending June 30, 1880, as follows:

WHOLE NUMBER ARRIVED.			UNDER 15 YEARS OF AGE.			15 YEARS AND UNDER 40 YEARS.			40 YEARS OF AGE AND OVER.		
Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
2, 812, 191	1, 725, 148	1, 087 043	571, 784	296, 276	275, 508	1, 884, 743	1, 210, 583	674, 160	355, 664	218, 289	137, 375

If, now, we take the group of population in the United States at the census of 1870, reported as living between the ages of 5 and 30, it is evident that these same persons at the census of 1880 must be found in the group of ages lying between 15 and 40, and that this last group then is composed of those who were at the census of 1870 between 5 and 30 years of age, plus the number of immigrants who have come in during the ten years at ages between 15 and 40, minus emigration at the same ages, and the deaths which have taken place during the ten years in the original group. Taking the mean population for the ten years to be 44,000,000, the annual rate of mortality above 15 years of age is found to be 8.95 per 1000. Now, the rate of mortality for this group of ages during the census year by the census figures is 7.76, which is less than the mean annual rate as above calculated by 15.3 per cent. In other words, if the mortality during the census year was the same as the annual average for ten years, the deficiency in the report of deaths is about 15 per cent. This point will again be referred to in speaking of the birth rate.

Again, if we take the number of deaths recorded as occurring under 1 year of age, and calculate the proportion these bear to the number recorded as born during the same period, we find that for the whole United States this proportion is 11.10 per cent. The following table shows this proportion for the several states, and also for several European countries, to permit of comparisons:

TABLE 1.—SHOWING FOR THE UNITED STATES, FOR EACH STATE AND TERRITORY, AND FOR SEVERAL EUROPEAN STATES, THE PROPORTION OF DEATHS UNDER 1 YEAR OF AGE IN 100 BORN.

States.	Periods.	Deaths under 1 year in 100 born.	States.	Periods.	Deaths under 1 year in 100 born.	States.	Periods.	Deaths under 1 year in 100 born.
United States	1880	11.10	Montana	1880	5.88	Austria	1866–1876	25.58
Alabama	1880	9.41	Nebraska	1880	8.61	Do	1880	24.90
Arizona	1880	7.18	Nevada	1880	8.01	England and Wales	1866–1876	15.11
Arkansas	1880	10.18	New Hampshire	1880	10.09	Do	1880	15.28
California	1880	10.68	New Jersey	1880	13.93	Scotland	1865–1874	12.36
Colorado	1880	10.61	New Mexico	1880	14.04	Do	1878	12.30
Connecticut	1880	11.32	New York	1880	15.70	Ireland	1865–1876	9.63
Dakota	1880	6.18	North Carolina	1880	10.03	Do	1880	11.23
Delaware	1880	12.56	Ohio	1880	10.06	Prussia	1866–1871	21.77
District of Columbia	1880	23.52	Oregon	1880	6.91	Do	1879	22.58
Florida	1880	6.63	Pennsylvania	1880	10.90	Bavaria	1866–1875	31.35
Georgia	1880	9.65	Rhode Island	1880	13.32	Do	1879	20.17
Idaho	1880	5.16	South Carolina	1880	9.94	Saxony	1865	27.63
Illinois	1880	11.42	Tennessee	1880	10.78	Do	1874	27.00
Indiana	1880	11.56	Texas	1880	10.04	Würtemberg	1871–1875	31.71
Iowa	1880	7.74	Utah	1880	10.24	Do	1879	30.03
Kansas	1880	10.81	Vermont	1880	9.90	Baden	1866–1876	26.81
Kentucky	1880	10.20	Virginia	1880	11.48	Do	1880	24.01
Louisiana	1880	9.68	Washington	1880	6.26	Switzerland	1869–1876	10.65
Maine	1880	7.73	West Virginia	1880	7.81	Do	1880	17.90
Maryland	1880	10.20	Wisconsin	1880	8.87	Sweden	1866–1874	13.60
Massachusetts	1880	17.05	Wyoming	1880	6.38	Do	1878	13.42
Do	1870–1876	16.30	Italy	1872–1876	21.35	Norway	1866–1872	10.74
Michigan	1880	9.47	Do	1880	22.50	Do	1876	10.71
Minnesota	1880	8.56	Belgium	1866–1869	17.35	European Russia	1867–1871	26.54
Mississippi	1880	7.99	Do	1873	16.00	Do	1875	26.24
Missouri	1880	12.93						

TABLE 2.—SHOWING FOR CERTAIN STATES, WITH DISTINCTION OF COLOR, THE PROPORTION OF DEATHS UNDER 1 YEAR OF AGE IN 100 BORN.

States.	DEATHS UNDEY 1 YEAR IN 100 BORN.		States.	DEATHS UNDER 1 YEAR IN 100 BORN.		States.	DEATHS UNDER 1 YEAR IN 100 BORN.	
	White.	Colored.		White.	Colored.		White.	Colored.
Alabama	7.64	11.30	Georgia	8.21	11.17	South Carolina	7.46	11.32
Arkansas	9.91	10.96	Louisiana	9.24	10.08	Tennessee	9.75	13.37
Delaware	11.96	14.81	Maryland	15.25	18.87	Texas	9.80	10.78
District of Columbia	17.32	32.10	Mississippi	6.97	8.70	Virginia	9.46	13.91
Florida	5.98	7.33	North Carolina	8.87	11.74			

The most complete reports bearing on this point for any individual state are undoubtedly those of Massachusetts, which, for the census year, give the proportion of deaths under 1 year of age as 17.05 per 100 births. If this be taken as the true average proportion for the whole United States, the deficiency in the number of deaths of children under 1 year of age would be a little over 34 per cent. It is precisely at this age, however, that the records are most deficient, and hence it seems probable that the percentage of defect for the total population would be considerably less, certainly below what I have taken as the maximum, *i. e.*, 30 per cent.

Still another means of estimating the maximum deficiency in the returns of deaths and the mortality of the country for the year is afforded by a comparison of the figures derived from the registration records of 31 large cities, which records may be presumed to be fairly accurate. The results of such a comparison are shown in the following table (Table 3) and diagram (Fig. 1).

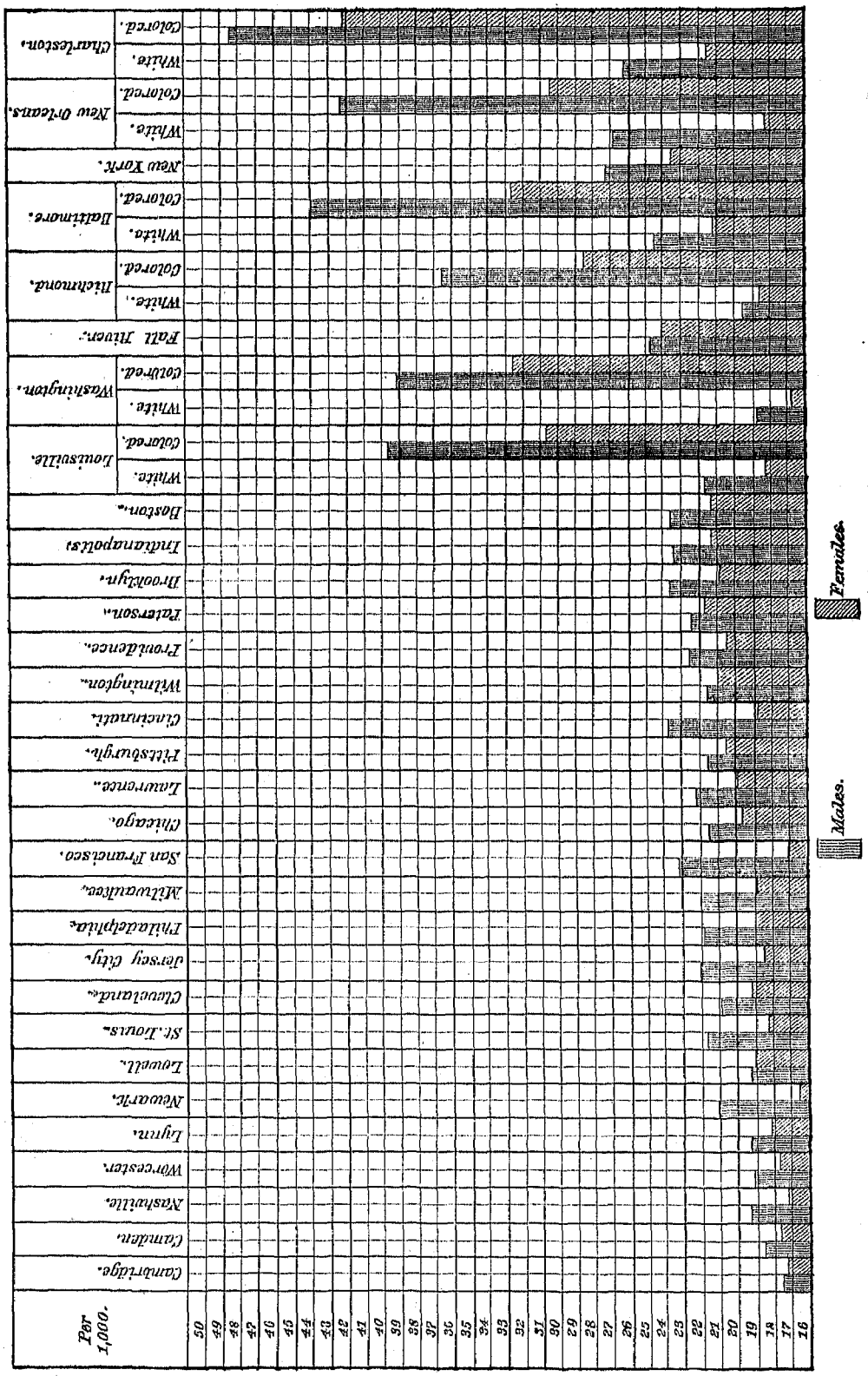
From this table it appears that the average death rate in these large cities was 22.28 per 1000, and as the mortality in such cities is usually between 4 and 5 per 1000 greater than it is for the average mortality of a large country, including cities, towns, and rural districts, this increases the probability that the average rate for the whole country is not far from 18 per 1000 of living population.

TABLE 3.—SHOWING FOR 31 REGISTRATION CITIES WITH DISTINCTION OF SEX, AND FOR 6 CITIES WITH DISTINCTION OF COLOR, THE PROPORTION OF DEATHS IN 1000 OF LIVING POPULATION FOR THE CENSUS YEAR 1879–'80.

Cities.	POPULATION.			DEATHS.			DEATHS PER 1000 OF LIVING POPULATION.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Total	6,603,414	3,228,287	3,375,127	147,158	77,225	69,933	22.28	23.92	20.72
Cambridge	52,669	25,024	27,645	920	442	478	17.46	17.66	17.28
Camden	41,659	19,923	21,736	757	372	385	18.17	18.67	17.71
Nashville	43,350	20,912	22,438	790	405	385	18.22	19.36	17.15
Worcester	58,291	28,927	29,364	1,078	553	520	18.40	19.11	17.70
Lynn	38,274	18,243	20,031	714	351	363	18.65	19.24	18.12
Newark	136,508	66,077	70,431	2,551	1,389	1,162	18.68	21.02	16.49
Lowell	59,475	26,853	32,622	1,142	518	624	19.20	19.29	19.12
Saint Louis	350,518	179,520	170,998	7,035	3,917	3,118	20.07	21.81	18.23
Cleveland	160,146	80,174	79,972	3,226	1,677	1,549	20.14	20.91	19.36
Jersey City	120,722	59,919	60,803	2,448	1,323	1,125	20.27	22.07	18.50
Philadelphia	847,170	405,975	441,195	17,284	8,895	8,389	20.40	21.91	19.01
Milwaukee	115,587	57,475	58,112	2,369	1,267	1,102	20.49	22.04	18.96
San Francisco	233,959	132,608	101,351	4,798	3,073	1,725	20.50	23.17	17.02
Chicago	503,185	256,905	246,280	10,453	5,594	4,859	20.77	21.77	19.72
Lawrence	39,151	17,785	21,366	822	396	426	20.99	22.26	19.93
Pittsburgh	156,389	78,471	77,918	3,293	1,688	1,605	21.05	21.51	20.59
Cincinnati	255,139	125,492	129,647	5,449	2,989	2,460	21.35	23.81	18.97
Wilmington	42,478	20,751	21,727	910	452	458	21.42	21.78	21.07
Providence	104,857	49,787	55,070	2,259	1,126	1,133	21.54	22.61	20.57
Paterson	51,031	24,765	26,266	1,129	556	573	22.12	22.45	21.81
Brooklyn	566,663	272,248	294,415	12,603	6,437	6,166	22.24	23.64	20.94
Indianapolis	75,056	36,863	38,193	1,672	861	811	22.27	23.35	21.23
Boston	362,839	172,268	190,571	8,099	4,055	4,044	22.32	23.53	21.22
Louisville W.	102,847	49,751	53,096	2,061	1,086	975	20.04	21.82	18.36
Louisville C.	20,911	9,231	11,680	727	368	359	34.76	39.86	30.73
Washington W.	98,895	47,390	51,505	1,761	899	862	17.80	18.97	16.73
Washington C.	48,398	20,920	27,478	1,716	820	896	35.45	39.19	32.60
Fall River	48,961	23,163	25,798	1,196	576	620	24.42	24.86	24.03
Richmond W.	35,765	17,380	18,385	684	339	345	19.12	19.50	18.76
Richmond C.	27,895	12,163	15,732	890	442	448	31.97	36.51	28.48
Baltimore W.	278,584	134,446	144,138	6,327	3,281	3,046	22.71	24.40	21.13
Baltimore C.	53,729	22,047	30,782	2,021	1,011	1,010	37.61	44.05	32.81
New York	1,206,299	590,514	615,785	30,605	16,102	14,503	25.37	27.26	23.55
New Orleans W.	158,307	75,670	82,637	3,550	2,038	1,512	22.41	26.93	18.28
New Orleans C.	57,723	25,222	32,501	2,056	1,067	989	35.61	42.30	30.42
Charleston W.	22,699	10,599	12,100	540	278	262	23.78	26.22	21.65
Charleston C.	27,285	11,986	15,299	1,228	582	646	45.00	48.55	42.22

The census year 1879–'80 was probably a fair average year as regards mortality. No great epidemic occurred during this period, unless we may consider the marked prevalence of diphtheria as such, and with regard to this disease it is probable that its prevalence has been nearly as great for each of the five years from 1878 to 1882, inclusive.

FIG. 1.—DIAGRAM SHOWING FOR 31 REGISTRATION CITIES WITH DISTINCTION OF SEX, AND FOR 6 CITIES WITH DISTINCTION OF COLOR, THE PROPORTION OF DEATHS IN 1000 OF LIVING POPULATION FOR THE CENSUS YEAR 1879–'80.



The following table permits of comparison of the probable mortality in the United States during the census year, viz, 18 per 1000 of living population, with the mortality rates of some other countries:

TABLE 4.—SHOWING MORTALITY RATES OF CERTAIN COUNTRIES.

Country.	Period.	Death rate per 1000 of living population.
United States	Census year 1879–'80	18.0
England	Calendar year 1880	20.5
England (rural districts)	do	18.5
Denmark	do	20.4
Sweden	do	18.1
Austria	do	29.6
German Empire	do	26.1
Italy	do	30.5
Belgium	do	22.4
France	Average, 1860–'77	23.6
Spain	Average, 1861–'70	29.7

From this it will be seen that the death rate in the United States compares favorably with that of all other civilized countries, and this should be the case, since poverty and overcrowding are the chief causes of excessive mortality, and in this country there is a more general and equable distribution of the means of supporting life, including especially a food-supply of good quality, and more room than in European countries. Nevertheless, our mortality rate is not as low as it should be, especially if we take into consideration the fact that our population is being largely added to by the immigration of persons of those ages which have the lowest death rates. At present the average annual mortality rate for the whole country should not exceed 16, or at the utmost 16.5, per 1000; in other words, nearly 100,000 deaths occurred during the census year, chiefly among infants in cities and in the colored population, which were, in one sense, unnecessary and preventable.

SECTION III.—SEX IN RELATION TO DEATHS.

Of the total number of deaths reported, 391,960 were males and 364,933 females, being in the proportion of 931 females to each 1000 males. In the aggregate living population at the end of the census year there were 25,518,820 males and 24,636,963 females, or 965.4 females to each 1000 males. These figures give a male death rate of 15.35 and a female death rate of 14.81 per 1000. The proportion of female to male deaths is probably somewhat greater than these figures would indicate, the deficiency in the returns of deaths of females being somewhat greater than for the males. In England and Wales, during the year 1880, in 528,624 deaths the proportions were 933 females to each 1000 males.

The excessive death rate of males occurs chiefly at the earlier ages, as will be seen when we come to discuss the subject of age in relation to deaths.

Of 114,930 deaths reported among the colored population, 56,972 were males and 57,958 females, being in the proportion of 1,017 females to each 1000 males. In the colored living population at the end of the year there were 1,022 females to each 1000 males. According to these figures the mortality was proportionally somewhat greater in colored than in white females.

In addition to those causes of death which are peculiar to females, such as child-birth, abortion, and diseases of the female organs of generation, we find that a marked excess of deaths in the female is reported from the following causes, viz: Hooping-cough, old age, consumption, diphtheria, cancer, tumor, anæmia, heart disease, dropsy, peritonitis, and burns and scalds.

An excess of deaths in males is reported for the following causes, viz: Diarrhœal diseases, venereal diseases, alcoholism, poison, premature birth and still-birth, malformation, diseases of the brain, tetanus, aneurism, angina pectoris, croup, pneumonia, hernia and obstruction of the bowels, diseases of the liver, diseases of the kidney, including Bright's disease, diseases of the bones and joints and of the skin and cellular tissue, accidents of all kinds, and suicides.

The relations of sex to certain causes of death and to the births will be discussed in a subsequent part of this report. The following table shows the relative proportion of the sexes of decedents for some of the principal causes of death:

TABLE 5.—SHOWING FOR THE UNITED STATES AND FOR 50 CITIES THE PROPORTION OF MALE DEATHS TO 1000 FEMALE DEATHS OF CORRESPONDING AGES.

Deaths from—	PROPORTION OF MALE TO 1000 FEMALE DEATHS.				Deaths from—	PROPORTION OF MALE TO 1000 FEMALE DEATHS.			
	United States.		50 cities.			United States.		50 cities.	
	All ages.	Under 5 years.	All ages.	Under 5 years.		All ages.	Under 5 years.	All ages.	Under 5 years.
Alcoholism	5267.7	.....	2371.5	.....	Pleurisy	1078.5	1128.2	1280.0	1111.1
Suicide	4052.3	.....	3666.6	.....	Enteric fever	1071.4	1046.3	1105.1	1220.0
Accidents and injuries	2732.6	1225.1	2075.2	1444.6	Bronchitis	1055.3	1156.6	1031.5	1097.6
Diseases of the urinary organs	2234.0	1378.2	1391.8	1226.1	Malarial fever	1029.5	1069.0	1110.0	1203.2
Tetanus and trismus nascentium	1645.4	1361.2	1468.9	1333.3	Scrofula and tabes	1008.0	1086.6	966.9	945.5
Still-born	1418.4	1418.4	1311.4	1311.4	Infanticide	1000.0	1000.0	2000.0	2000.0
Diseases of the bones and joints	1366.7	1202.1	1338.2	1169.4	Heart disease and dropsy	989.3	1228.6	1001.6	1208.9
Pneumonia	1287.8	1221.3	1183.8	1119.8	Measles	972.6	1070.8	952.8	1017.4
Diseases of the respiratory system	1219.2	1206.0	1155.0	1139.2	Scarlet fever	966.8	1099.7	983.4	1040.1
Croup	1187.5	1202.4	1180.9	1167.8	Diphtheria	962.9	1081.7	962.2	1040.5
Diseases of the nervous system	1170.7	1206.8	1214.0	1224.3	Hooping-cough	865.4	870.9	797.7	804.0
Venereal diseases	1165.4	1041.3	1203.9	1080.0	Consumption	798.1	1094.3	1014.2	1112.6
Diseases of the digestive system	1147.5	1213.1	1175.4	1208.5	Peritonitis	710.0	1354.4	766.0	1203.3
Diarrhœal diseases	1109.8	1155.1	1120.1	1120.1	Cancer	595.0	961.5	526.3	1000.0
Paralysis and apoplexy	1092.8	1128.3	1120.5	1311.9					

SECTION IV.—RELATIONS OF AGE TO DEATHS.

The most important factor whose influence must be kept in view in studying the relations either of gross mortality rates of different localities or death rates from different diseases, or those pertaining to different occupations or to different races, is the age distribution in the living population furnishing the deaths which are the subject of study. We must, therefore, constantly keep in view the proportion of persons of each sex living at each age or group of ages pertaining to the particular locality or subject under investigation. So far as the living population is concerned, the results of the census which are of special interest in connection with mortality statistics are given in Tables LVII to LXI, in Part II of this report.

The data of age for the living population are, upon the whole, less accurate and satisfactory than they are for those dying. Nevertheless it is true for both that for a large number of persons the age reported is more or less unreliable. For many it is totally unknown to those furnishing the data, who simply estimate it; and, in such cases, the tendency always is to give the age in round numbers, as 30, 40, 50 years, etc.; or, to a somewhat less degree, 35, 45, 55, etc. This will be seen by reference to the statistics of the population by single years of age, for any of the states, and the fact is brought out more distinctly in subsequent remarks relating to the construction of life tables.

In Table VII, for each state group, with the exception of the large cities, the number of those dying at each age or group of ages is given for each cause of death, with distinction of sex; and in Table VIII the same information is given for the large cities of each grand group. From these data have been computed Tables XVI and XVII in Part II. Table XVI shows for each 1000 deaths of known ages, classified by age, sex, and cause, the number dying at each age or group of ages. From this we find, turning to any particular cause of death, as, for example, measles, that of each 1000 deaths from measles in males, 267.44 occurred in children under 1 year of age; 712.10 in children under 5 years of age. Table XVII shows the number of deaths in each 1000 deaths at known ages for certain groups of age, in each city and state group, and for the whole United States, with distinction of sex. This table, taken by itself, has really very little significance as indicating differences in mortality at different ages between different localities, since the proportion of deaths occurring at the given period of age, as, for instance, under one year, depends very largely on the number of children of that age present in the community.

The proper way to make such comparisons is by giving in each locality the number of deaths per 1000 of those living at the age or group of ages which are to be compared. This we can only do directly to any good purpose for those states and cities in which a sufficiently accurate registration of deaths has been made, and for these the results are best given in the approximate life tables to be referred to hereafter. Where no such registration has been kept, we cannot compare the deaths at a given age with the number of the living population at the same age, so as to produce accurate results, and this is especially the case as regards the years of infancy and childhood, since it is at these ages that the greatest deficiency in the records of death occurs. It is possible, however, to make approximate corrections of the ratios contained in Table XVI for those groups of ages, as well as for the adults, by means of the ratios of the living population at the same ages given in Table LVII, Part II, and it is mainly for such uses that the table is given.

The following table shows for the United States, and for the 31 registration cities, by ages, the population, the number of deaths, and the ratio per 1000 of deaths to the population of corresponding ages:

TABLE 6.—SHOWING FOR THE UNITED STATES AND FOR 31 REGISTRATION CITIES, BY AGES, THE LIVING POPULATION, THE NUMBER OF DEATHS, AND THE NUMBER OF DEATHS PER 1000 OF LIVING POPULATION OF CORRESPONDING AGES.

Ages.	UNITED STATES.			31 REGISTRATION CITIES.		
	Living population.	Deaths of corresponding ages.	Proportion of deaths per 1000 living.	Living population.	Deaths of corresponding ages.	Proportion of deaths per 1000 living.
All ages	50,155,783	756,893	15.0	6,603,414	147,158	22.2
Under 1.....	1,447,983	175,184	120.9	165,469	44,249	267.5
1.....	1,256,956	56,816	45.2	132,933	11,623	87.4
2.....	1,427,086	33,417	23.4	162,715	5,977	36.7
3.....	1,381,274	21,276	15.4	157,040	3,898	24.7
4.....	1,401,217	15,931	11.3	156,013	2,824	17.9
Under 5.....	6,914,516	302,624	43.7	775,676	68,571	88.4
5–10.....	6,479,660	43,093	6.7	710,340	6,407	8.9
10–15.....	5,715,180	22,915	4.0	648,748	2,422	3.7
15–20.....	5,011,415	29,308	5.9	636,333	3,513	5.5
20–25.....	5,087,772	39,355	7.7	713,477	6,123	8.5
25–30.....	4,080,621	33,182	8.1	614,504	6,307	10.3
30–35.....	3,368,943	28,669	8.5	520,000	6,014	11.3
35–40.....	3,000,419	28,030	9.5	488,204	6,470	13.2
40–45.....	2,468,811	24,954	10.1	401,420	5,633	14.0
45–50.....	2,089,445	23,996	11.5	314,321	5,555	17.6
50–55.....	1,830,883	24,530	13.3	272,763	5,250	19.2
55–60	1,271,434	22,352	17.6	163,416	4,628	28.3
60–65.....	1,104,219	26,183	23.7	142,487	4,626	32.4
65–70.....	725,876	25,685	35.4	80,188	4,332	54.0
70–75.....	495,442	25,786	51.9	53,793	3,780	70.2
75–80	281,965	22,352	79.5	27,908	3,140	112.5
80–85.....	146,362	16,641	113.7	14,725	2,136	145.0
85–90.....	49,835	8,149	163.5	4,548	1,016	223.3
90–95.....	16,100	3,263	203.0	1,563	360	230.3
95 and over	8,770	2,009	228.8	802	276	344.1
Unknown.....	.....	3,228	.....	.....	530	.....

In considering this table it should be remembered that the reports of deaths for the whole United States are defective from 15 to 30 per cent., while for the cities they are nearly complete. It will be seen that for each 1000 living under 1 year of age in the United States at large the proportion of deaths was 120.9; while in the cities the number of deaths per 1000 of the same age was 267.5. Under 5 years of age the proportion of deaths in the country at large was 43.7 per 1000 of living population, while in the registration cities it was 88.4 per 1000. In other words, the mortality of children under 5 years of age, according to this table, was about twice as great in the cities as in the average of the whole country.

The following table permits of a comparison of the distribution of deaths by age in the United States as reported, and in certain foreign countries:

TABLE 7.—SHOWING FOR THE UNITED STATES, FOR MASSACHUSETTS, AND FOR THE PRINCIPAL COUNTRIES OF EUROPE, THE NUMBER OF DEATHS AT EACH OF CERTAIN GROUPS OF AGES PER 100 DEATHS OF ALL AGES.

States.	Year.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 95.	95 to 100.	100 and over.	Unknown.
United States	1880	23.24	16.90	5.71	3.04	3.80	9.61	7.60	6.40	6.22	6.88	6.38	3.28	0.43	*a* 0.26	.....	0.42
Massachusetts	1880	20.37	14.23	4.15	1.73	3.13	9.26	7.71	6.76	7.19	8.80	9.10	6.03	*b* 1.02	.....	.....	0.43
Italy	1880	24.77	20.60	4.19	1.88	2.17	5.17	4.90	5.52	7.48	9.71	9.70	3.53	*c* 0.34	.....	0.01	0.03
France	1879	17.59	8.83	2.46	1.56	2.20	6.02	6.07	6.73	9.20	14.07	16.20	8.21	*c* 0.67	.....	0.01	.....
Prussia	1880	32.25	15.96	3.96	1.67	1.83	4.71	5.25	5.70	7.41	9.55	8.19	*d* 3.40	.....	.....	.....	0.12
Bavaria	1880	30.48	10.71	2.73	1.02	1.17	3.72	4.47	4.93	6.95	10.62	10.42	3.54	*b* 0.22	.....	.....	0.02
Saxony	1880	42.00	15.34	*e* 4.27	.....	.....	4.26	4.08	4.92	6.63	8.09	7.37	*d* 2.32	.....	.....	.....	0.17
Thuringia	1880	31.71	15.30	3.38	1.30	1.56	3.89	4.46	5.20	7.74	11.12	9.09	3.42	*b* 0.21	.....	.....	0.63
Würtemberg	1880	41.78	11.92	2.88	1.10	1.14	3.29	4.25	4.71	6.48	9.47	9.93	2.90	*b* 0.15	.....	.....	.....
Baden	1880	33.77	12.33	3.48	1.35	1.70	4.55	5.36	5.24	7.42	10.81	10.25	3.41	*b* 0.22	.....	.....	0.11
Alsace and Lorraine ...	1880	28.74	11.96	3.03	1.39	2.02	4.59	4.88	5.38	7.30	11.83	13.20	4.86	*c* 0.32	.....	0.02	0.39
Austria	1880	31.62	16.51	4.48	1.82	2.02	4.78	5.09	5.97	7.74	9.48	7.51	2.68	*c* 0.26	.....	0.01	0.03

a 95 and over. *b* 90 and over. *c* 90 to 100. *d* 80 and over. *e* 5 to 20.

TABLE 7—Continued.

States.	Year.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 30.	30 to 40.	40 to 50.	50 to 60.	60 to 70.	70 to 80.	80 to 90.	90 to 95.	95 to 100.	100 and over.	Unknown.
Croatia and Slavonia	1880	30.44	19.37	4.74	2.25	2.54	6.44	6.95	7.54	7.97	6.75	3.91	0.96	a 0.10	.....	0.01	0.03
Switzerland	1880	24.34	8.97	3.00	1.48	2.22	5.52	6.48	7.17	9.99	13.09	13.04	4.54	b 0.25	.....	.....	0.11
Belgium	1880	25.00	13.09	2.97	1.62	2.23	5.43	5.42	5.78	7.49	10.58	12.99	5.90	a 0.50	.....	0.01	.....
Holland	1878	31.01	14.10	3.04	1.76	2.06	5.12	5.43	5.45	7.10	9.28	10.49	4.72	b 0.46	.....	.....	0.04
Sweden	1880	19.58	13.68	5.23	2.58	2.55	5.56	5.19	5.95	8.62	11.32	12.06	6.96	b 0.62	.....	.....	0.10
Norway	1878	20.59	12.21	4.03	2.57	3.10	7.38	5.40	5.77	7.17	9.00	12.08	8.90	a 1.47	.....	0.02	0.31
Denmark	1880	23.49	12.19	5.31	3.10	2.41	5.53	4.86	5.63	7.89	10.67	12.04	6.10	b 0.78	.....	.....	.....
Finland	1880	25.55	18.73	5.25	2.20	2.44	5.41	5.48	5.76	7.95	9.42	8.25	3.35	b 0.21	.....	.....	.....
European Russia	1875	38.82	20.81	4.39	1.85	1.86	4.24	4.44	5.25	6.17	6.37	4.40	1.14	a 0.19	.....	0.02	0.06
Spain	1865–'70	22.93	25.20	3.73	1.98	2.39	5.62	5.90	6.89	7.24	8.62	6.68	2.50	a 0.31	.....	0.01	.....
Greece	1880	18.09	17.30	6.09	3.31	3.28	6.62	7.07	7.64	7.74	9.16	7.76	4.41	a 1.25	.....	0.28	.....
Roumania	1879	23.54	19.33	7.94	c 5.90	.....	6.58	7.17	7.83	7.45	7.14	4.59	1.78	a 0.60	.....	0.15	.....

Great Britain.	Year.	Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 to 75.	75 to 85.	85 to 95.	95 and over.	Unknown.
England and Wales	1880	25.48	16.98	3.66	1.73	2.23	2.61	5.51	6.36	6.88	8.75	10.06	7.66	d 2.09	.....	.....
Scotland	1878	20.31	17.37	4.49	2.57	3.33	3.43	6.08	5.97	6.82	8.46	9.87	8.52	2.54	0.22	0.02
Ireland	1880	13.98	11.60	4.00	2.53	3.41	3.85	5.62	5.78	6.54	10.77	14.05	13.30	3.72	0.80	0.05

a 90 to 100. b 90 and over. c 10 to 20. d 85 and over.

FIG. 2.—DIAGRAM SHOWING FOR THE UNITED STATES AND CERTAIN EUROPEAN STATES THE PROPORTION OF DEATHS UNDER 1 YEAR OF AGE PER 100 DEATHS OF ALL AGES.

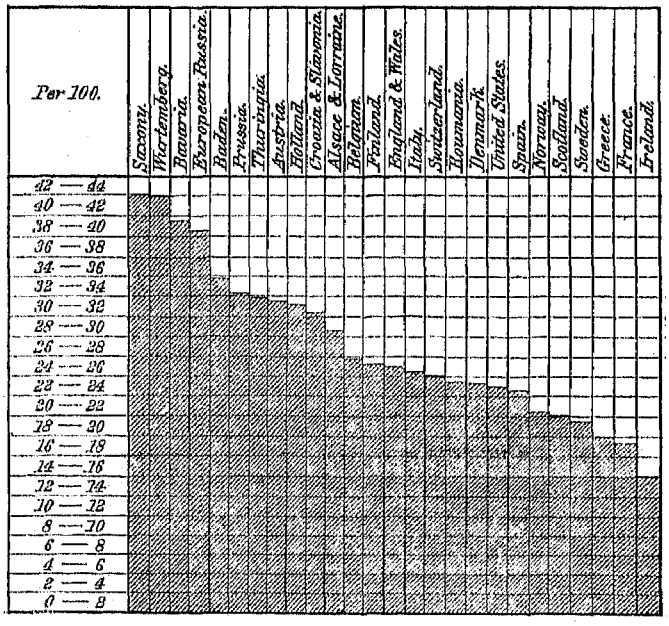
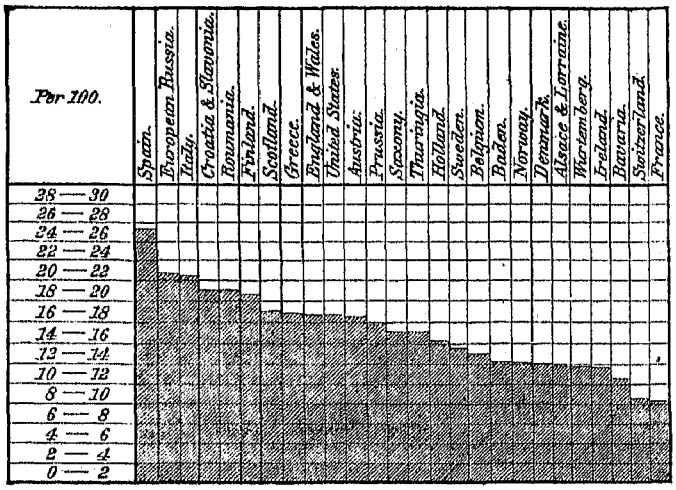


FIG. 3.—DIAGRAM SHOWING FOR THE UNITED STATES AND SOME EUROPEAN STATES THE PROPORTION OF DEATHS FROM 1 TO 5 YEARS OF AGE PER 100 DEATHS OF ALL AGES.



It will be seen from this table that, as regards the proportion of infantile to the whole mortality, the United States is near the mean, being exceeded in the proportion of deaths occurring under 1 year of age by Austria, Belgium, England and Wales, Germany, Holland, Italy, and European Russia, while France, Sweden and Norway, Scotland, and Ireland have a lower rate. In the more advanced group of ages, as from 60 years and upward, the proportion of deaths is less in the United States than it is in most other countries, owing to the fact that the proportion of the living population at those ages is less than it is elsewhere.

The following table (Table 8), giving the mortality by ages, for certain German cities, will be found of interest in making comparisons with Table 7.

FIG. 4.—DIAGRAM SHOWING FOR THE UNITED STATES AND CERTAIN EUROPEAN STATES THE DEATHS PER 100 AT OVER 80 YEARS OF AGE, AND FOR EUROPEAN RUSSIA AND FOR CROATIA AND SLAVONIA AT OVER 75 YEARS OF AGE.

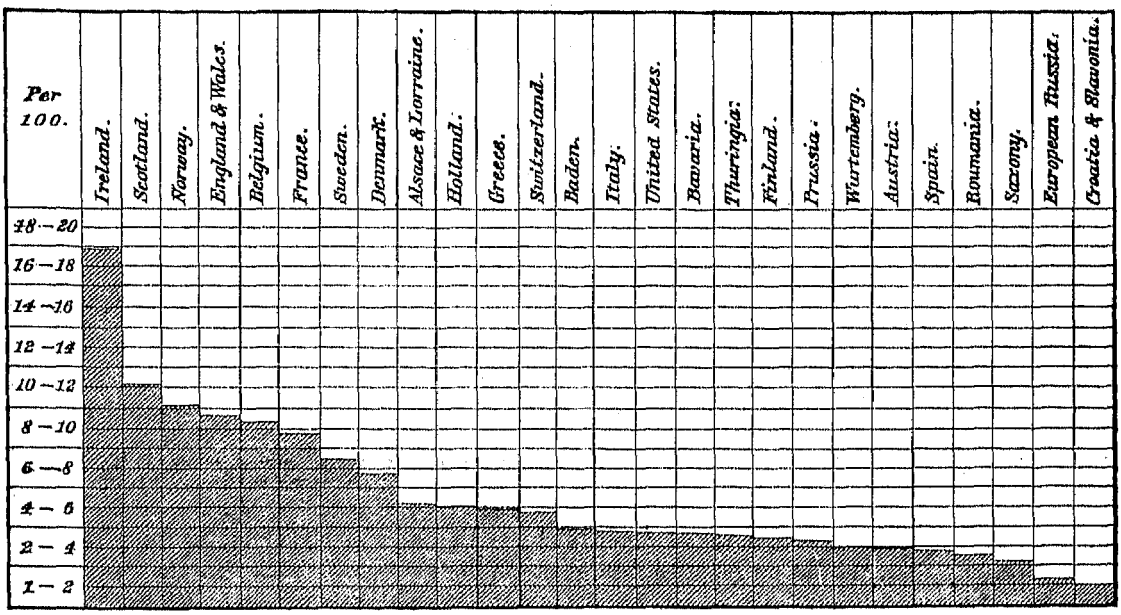


TABLE 8.—SHOWING FOR CITIES WITH 100,000 POPULATION AND OVER, AND FOR THE TOTAL OF CITIES WITH 15,000 INHABITANTS AND OVER, IN THE GERMAN EMPIRE, THE PROPORTION OF BIRTHS, DEATHS, AND DEATHS AT CERTAIN GROUPS OF AGES IN 10,000 OF THE MEAN POPULATION OF THE YEARS 1878 TO 1882.*

Cities with a population of 100,000 and over.	Born, exclusive of still-born.	Died, exclusive of still-born.	RATIO OF DEATHS IN 10,000 OF POPULATION.						
			1 year.	2 to 5 years.	6 to 20 years.	21 to 40 years.	41 to 60 years.	61 years and over.	Age unknown.
Königsberg	372.4	315.0	144.0	23.4	16.2	41.2	40.2	44.0	.....
Danzig	365.8	291.8	107.9	44.7	10.4	34.2	41.3	43.2	1.1
Breslau	383.2	316.8	114.0	52.3	15.9	44.3	46.7	42.8	0.1
Munich	394.9	334.5	141.7	38.6	14.5	39.4	44.5	55.9	.....
Stuttgart	344.8	228.3	90.9	30.6	11.7	31.1	30.5	33.5	0.02
Nuremberg	296.7	263.2	96.0	35.6	12.6	36.1	38.3	44.5	.....
Dresden	356.4	247.4	82.4	32.9	14.4	35.7	37.2	44.4	0.5
Chemnitz	440.1	316.6	102.8	47.4	14.4	28.3	30.5	33.1	0.2
Leipzig	335.4	227.2	88.2	17.1	12.9	37.9	34.6	36.2	0.4
Magdeburg	368.7	258.6	91.0	30.1	14.5	34.6	38.0	41.6	.....
Hamburg	390.1	256.2	84.6	41.2	15.1	35.2	33.9	46.1	0.1
Hanover	354.2	211.5	75.6	22.9	13.5	34.2	29.8	35.5	.....
Bremen	361.3	212.5	78.7	18.2	14.8	32.7	29.7	36.7	2.2
Cologne	383.1	270.1	91.9	45.9	14.7	37.0	35.7	44.8	0.1
Barmen	417.9	239.5	70.7	52.1	20.6	34.1	29.6	32.5	.....
Düsseldorf	405.3	253.8	104.1	26.8	16.5	35.3	32.7	39.4	0.04
Elberfeld	406.0	243.4	68.1	49.6	19.5	36.9	31.8	37.5	.....
Frankfort-on-the-Main	317.8	264.4	58.6	26.8	11.2	36.4	33.2	38.3	.....
Strasburg in Alsace	360.6	290.4	118.0	25.5	17.1	36.0	38.8	60.4	0.5
Cities with a population of 15,000 and over	374.7	264.7	97.5	36.9	16.2	35.6	35.8	42.3	0.4

*See "*Veröffentlichungen des Kaiserlich Deutschen Gesundheitsamtes*", Berlin, Nov. 10, 1884, Jahrgang VIII, No. 45, p. 221, etc.

Of the 390,170 deaths of males in the United States in which the ages are recorded, 96,849 occurred under 1 year of age, and 163,779 under 5 years of age. The proportion of deaths of males under 1 year of age to all deaths recorded was 248.22 per 1000; of those under 5 years of age, 419.76 per 1000. The proportion of deaths of females under 1 year of age to those of all ages recorded was 215.51 per 1000; of those under 5 years of age, 381.97 per 1000. The proportion to all deaths of which the ages are recorded of deaths of persons from 5 to 15 years of age was 87.57 per 1000; from 15 to 60 years of age, 299.66 per 1000, and over 60 years of age, 172.40 per 1000.

Some of the facts with regard to the mortality of infants, as shown by the census returns, are given in Table LI, Part II, which gives, for the United States, for each state and territory, and for each state group and grand group, the number of deaths reported as occurring under 1 month of age and under 3 months of age, together with the ratios of these deaths, and the total number of births reported to the total number of deaths occurring under 1 year of

age. For the whole United States the number of deaths under 1 year of age during the census year per 1000 of those born within the year was for males 90.3 and for females 73.2. In the southern portion of the United States it was for white males, 89.6; for colored males, 102.7; for white females, 73.0; for colored females, 86.2. The greater the mortality of infants under 1 year of age in the colored race is here well marked. If we compare the proportion occurring in the fifty large cities with that of the rest of the country, which for brevity's sake we designate as rural, we find that the number of deaths under 1 year of age are, per 1000 of those born within the year in the cities, males, 162.4; females, 132.8; while in the rural section it is males, 78.1; females, 63.0; the reported infantile mortality in the cities being thus more than twice as great as it is in the rest of the country. This increased death rate of infants in the cities is, however, as already explained, due to a considerable extent to the greater completeness of the returns of deaths in the cities, and cannot, therefore, be taken as a relative measure of the healthfulness of cities versus rural districts. Taking, now, the deaths reported as having occurred under 1 month of age, we find that they give a proportion per 1000 of total births for the whole United States, males, 53.7; females, 41.8. In the cities the proportions are, males, 109.8; females, 86.4; and in the rural districts, males, 44.2; females, 34.2. In the southern portion of the United States, where the distinction of color is given, the proportion of deaths under 1 month of age per 1000 of total births reported is, for white males, 54.3; for colored males, 55.4; for white females, 42.4; for colored females, 46.2.

If we take the proportion of the deaths under 1 month of age per 1000 of those reported as dying under 1 year of age, we find that for the whole United States it is, males, 447.3; females, 410.7. In the cities it is, males, 490.8; females, 450.9. In the rural districts, males, 431.3; females, 395.6. In the southern groups, where distinction of color is made, it is, for white males, 450.4; colored males, 424.0; white females, 413.5; colored females, 412.9.

The proportion of deaths under 3 months of age to the total number of births is, for the whole United States, males, 73.0; females, 58.6. In the 50 large cities it is, males, 139.0; females, 112.2. In the rural districts, males, 61.8; females, 49.5. In the southern groups, where distinction of color is made, it is, white males, 73.8; colored males, 77.9; white females, 59.3; colored females, 65.9. The greatest mortality among infants under 1 month of age occurs in the city of Grand Group III (Charleston), where these deaths for the whites are, males, 571.4; females, 382.4, and for the colored males 685.5, females 645.7 of each 1000 deaths under 1 year of age—that is to say, considerably over half of the deaths under 1 year of age among the colored population occur in this city in infants under 1 month old.

The relations of infantile mortality to the birth rate are shown in the following tables and in the diagrams given in Plates I and II.

TABLE 9.—SHOWING FOR THE UNITED STATES AND FOR GRAND GROUPS THE PROPORTION OF DEATHS UNDER 1 MONTH, UNDER 3 MONTHS, AND UNDER 1 YEAR OF AGE, TO 1000 BIRTHS.

	UNDER 1 MONTH IN 1000 BIRTHS.		UNDER 3 MONTHS IN 1000 BIRTHS.		UNDER 1 YEAR IN 1000 BIRTHS.	
	Male.	Female.	Male.	Female.	Male.	Female.
THE UNITED STATES	53.7	41.8	73.0	58.6	90.3	73.2
GRAND GROUP 1—North Atlantic Coast region	78.6	62.7	99.3	73.2	117.7	89.7
GRAND GROUP 2—Middle Atlantic Coast region	97.3	78.3	124.1	101.5	147.6	121.8
GRAND GROUP 3—South Atlantic Coast region	53.2	42.1	73.8	61.9	96.9	80.9
GRAND GROUP 4—Gulf Coast region	52.8	43.6	67.9	56.8	84.4	71.7
GRAND GROUP 5—Northeastern Hills and Plateaus	56.9	43.3	73.0	56.1	90.3	70.1
GRAND GROUP 6—Central Appalachian region	33.4	25.4	54.7	44.9	74.7	58.7
GRAND GROUP 7—Region of the Great Northern Lakes	62.3	47.7	83.1	64.2	99.4	78.4
GRAND GROUP 8—The Interior Plateau	53.8	42.5	75.4	61.3	94.2	75.8
GRAND GROUP 9—Southern Central Appalachian region	41.1	33.4	60.1	50.4	76.2	63.8
GRAND GROUP 10—The Ohio River Belt	53.6	41.7	72.1	57.2	86.6	71.5
GRAND GROUP 11—Southern Interior Plateau	38.6	31.3	58.4	48.2	73.9	62.1
GRAND GROUP 12—South Mississippi River Belt	38.9	31.7	61.8	55.3	82.0	69.0
GRAND GROUP 13—North Mississippi River Belt	66.8	51.7	87.1	69.6	102.8	82.3
GRAND GROUP 14—Southwest Central region	44.5	34.8	62.6	49.2	80.7	65.7
GRAND GROUP 15—Central region, plains and prairies	53.6	40.2	70.6	56.8	87.0	70.6
GRAND GROUP 16—The Prairie region	44.1	33.3	59.2	47.0	73.6	58.3
GRAND GROUP 17—Missouri River Belt	52.3	37.4	62.1	46.3	81.7	63.4
GRAND GROUP 18—Region of the Western Plains	47.1	38.4	64.5	53.2	71.1	61.4
GRAND GROUP 19—Heavily-timbered region of the Northwest	42.3	32.8	57.3	43.1	71.6	53.9
GRAND GROUP 20—Cordilleran region	29.6	22.6	52.6	44.3	69.5	59.1
GRAND GROUP 21—Pacific Coast region	60.3	51.4	83.1	65.3	95.2	76.8

(See Plate I in pocket at end of volume.)

TABLE 10.—SHOWING FOR SPECIFIED GRAND GROUPS, WITH DISTINCTION OF RURAL AND CITIES, AND OF SEX, AND IN CERTAIN GRAND GROUPS OF COLOR, THE PROPORTION OF DEATHS UNDER 1 MONTH, UNDER 3 MONTHS, AND UNDER 1 YEAR OF AGE, TO 1000 TOTAL BIRTHS.

Grand groups.	RURAL.						CITIES.					
	Under 1 month.		Under 3 months.		Under 1 year.		Under 1 month.		Under 3 months.		Under 1 year.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
GRAND GROUP 1—North Atlantic Coast region	61.6	45.3	77.6	61.2	93.0	74.3	112.1	97.1	142.0	97.0	166.1	129.0
GRAND GROUP 2—Middle Atlantic Coast region—White	50.8	37.1	72.4	55.0	89.0	70.3	122.4	98.2	151.6	123.9	176.9	145.0
GRAND GROUP 2—Middle Atlantic Coast region—Colored	59.6	56.6	81.6	72.4	97.2	90.0	168.4	150.3	209.1	195.8	276.7	245.0
GRAND GROUP 3—South Atlantic Coast region—White	34.0	24.2	51.6	41.6	70.4	56.6	100.2	85.8	126.3	105.6	146.8	118.8
GRAND GROUP 3—South Atlantic Coast region—Colored	50.0	39.8	73.5	60.7	98.5	81.9	290.6	257.1	366.0	289.3	352.1	323.2
GRAND GROUP 4—Gulf Coast region—White	30.9	24.6	41.3	33.5	50.4	43.2	114.0	90.3	143.8	111.8	175.8	141.6
GRAND GROUP 4—Gulf Coast region—Colored	38.4	32.1	51.1	44.2	67.4	56.2	203.6	183.0	280.8	219.9	286.2	260.7
GRAND GROUP 5—Northeastern Hills and Plateaus	53.6	41.3	69.6	54.0	86.7	67.4	101.3	71.8	119.9	85.2	139.2	107.3
GRAND GROUP 6—Central Appalachian region	33.1	24.8	*54.4*	*44.2*	*74.4*	*57.9*	*42.4*	*38.6*	*62.5*	*50.6*	*81.4*	75.2
GRAND GROUP 7—Region of the Great Northern Lakes	37.4	28.9	53.8	42.4	71.4	57.0	95.9	72.2	122.7	92.5	137.2	106.3
GRAND GROUP 8—The Interior Plateau—White	40.7	29.7	59.1	44.0	72.9	55.3	74.1	63.1	104.6	92.8	127.9	111.3
GRAND GROUP 8—The Interior Plateau—Colored	68.8	55.3	87.4	71.3	115.5	90.6	124.6	106.0	176.6	150.6	237.0	207.1
GRAND GROUP 10—The Ohio River Belt—White	44.3	33.0	58.6	45.3	72.0	56.9	92.1	71.5	130.5	99.9	143.0	110.5
GRAND GROUP 10—The Ohio River Belt—Colored	46.7	53.2	65.9	71.4	97.7	98.3	202.5	161.9	289.7	202.4	278.9	263.2
GRAND GROUP 13—North Mississippi River Belt	46.0	34.5	65.4	51.8	79.8	63.8	157.2	129.4	182.1	140.9	203.4	165.7
GRAND GROUP 15—Centr. reg., *plains* and *prairies*—White	50.4	36.5	67.6	53.9	82.9	60.1	95.3	77.8	118.3	95.1	128.1	100.7
GRAND GROUP 15—Centr. reg., *plains* and *prairies*—Colored	64.3	52.6	78.5	66.6	110.9	93.2	135.8	119.9	170.4	137.8	195.1	160.7
GRAND GROUP 17—Missouri River Belt	52.5	37.7	62.7	46.8	81.3	63.5	46.8	31.1	48.5	34.5	91.9	65.6
GRAND GROUP 18—Region of the Western Plains	47.1	38.4	64.0	53.3	70.1	61.1	47.5	37.0	71.3	51.5	88.1	65.0
GRAND GROUP 21—Pacific Coast region	34.9	25.4	46.0	34.1	55.4	42.9	121.1	97.5	147.7	120.5	164.6	136.9

(See Plate II in pocket at end of volume.)

In commenting on the general death rate, attention was called to the fact that the gross mortality rates, as given in Table II cannot be accepted as giving any indications of value as to the true mortality rates in the several states, or as to their relative healthfulness. Probably one of the best methods of comparing the relative healthfulness of the states and territories, which the census figures will permit us to use, is by a comparison of the proportion of deaths reported as occurring among those infants born during the census year. It is true that the figures available for this purpose are defective and inaccurate; but the defects and errors tend to neutralize each other, since the greater the deficiency in the reports of deaths of infants the greater also the deficiency in the reports of births, which last are taken as the sum of the living children reported as being under 1 year of age at the day of the census plus the infants reported as born and died during the census year. The following table gives the results of such a comparison:

TABLE 11.—SHOWING FOR THE UNITED STATES, AND FOR EACH STATE AND TERRITORY, WITH DISTINCTION OF SEX, AND FOR CERTAIN STATES WITH DISTINCTION OF COLOR, THE PROPORTION OF DEATHS DURING THE CENSUS YEAR TO 1000 BIRTHS WITHIN THE YEAR.

States and Territories.	Per 1000.		States and Territories.	Per 1000.		States and Territories.	Per 1000.	
	Male.	Female.		Male.	Female.		Male.	Female.
UNITED STATES	90.3	73.2	Virginia	97.3	81.3	Delaware	88.9	73.5
			White	77.6	61.6	White	85.4	67.2
District of Columbia	158.7	145.4	Colored	121.7	104.4			
White	115.5	104.4				Connecticut	88.1	75.3
Colored	220.7	200.2	Illinois	94.1	75.8	Kentucky	87.3	69.1
			Indiana	93.8	74.7	Utah	87.2	71.6
Massachusetts	138.8	100.9	California	92.9	74.5			
New York	124.5	101.1				Texas	86.3	69.4
			Tennessee	90.9	77.5	White	82.6	67.0
Maryland	123.3	95.8	White	83.0	68.3			
White	115.8	84.8				New Hampshire	85.2	63.9
			Pennsylvania	90.0	71.4			
Rhode Island	108.5	87.1	Vermont	89.8	69.9			
New Mexico	108.1	99.1				Louisiana	83.4	69.7
Missouri	104.6	82.4	North Carolina	89.0	68.9	White	78.7	61.5
New Jersey	100.5	86.9	White	76.1	60.3	Colored	87.7	76.9
			Colored	108.5	81.0			

TABLE 11—Continued.

States and Territories.	Per 1000.	
	Male.	Female.
South Carolina	82.2	71.3
White	55.2	47.5
Colored	97.5	84.1
Arkansas	81.7	69.9
White	79.0	66.0
Ohio	81.4	68.9
Michigan	70.6	61.9
Kansas	78.7	66.7
Georgia	77.8	66.4
White	63.8	55.5
Colored	93.4	77.2

States and Territories.	Per 1000.	
	Male.	Female.
Alabama	77.8	68.5
White	61.9	54.0
Colored	95.2	83.8
Wisconsin	75.9	57.5
Nebraska	71.7	53.0
Minnesota	68.9	52.0
Mississippi	64.7	51.6
White	53.2	40.9
Colored	73.0	58.6
West Virginia	63.6	55.9
Iowa	62.9	49.2
Arizona	62.3	55.8

States and Territories.	Per 1000.	
	Male.	Female.
Maine	61.8	52.1
Nevada	59.5	47.1
Wyoming	55.6	54.3
Oregon	54.9	47.6
Montana	54.9	35.8
Dakota	54.8	39.5
Florida	53.4	46.0
White	41.9	41.7
Colored	66.3	50.6
Washington	51.7	28.0
Colorado	48.8	47.0
Idaho	37.4	37.9

Table XX, Part II, shows for the grand groups in the northern part of the United States the number of deaths of Irish and German parentage at each age and group of ages in 1000 deaths of which the ages are known, with distinction of sex.

Figs. 5 and 6 illustrate the results shown in the summary of this table.

FIG. 5.—DIAGRAM SHOWING FOR GRAND GROUPS 1, 2, 5, 6, 7, 8, 10, 13, 16, 17, 18, 19, 20, AND 21, WITH DISTINCTION OF SEX, THE PROPORTION OF DEATHS OF PERSONS OF IRISH PARENTAGE AT EACH AGE AND GROUP OF AGES IN 1000 DEATHS OF PERSONS OF IRISH PARENTAGE OF WHICH THE AGES ARE KNOWN.

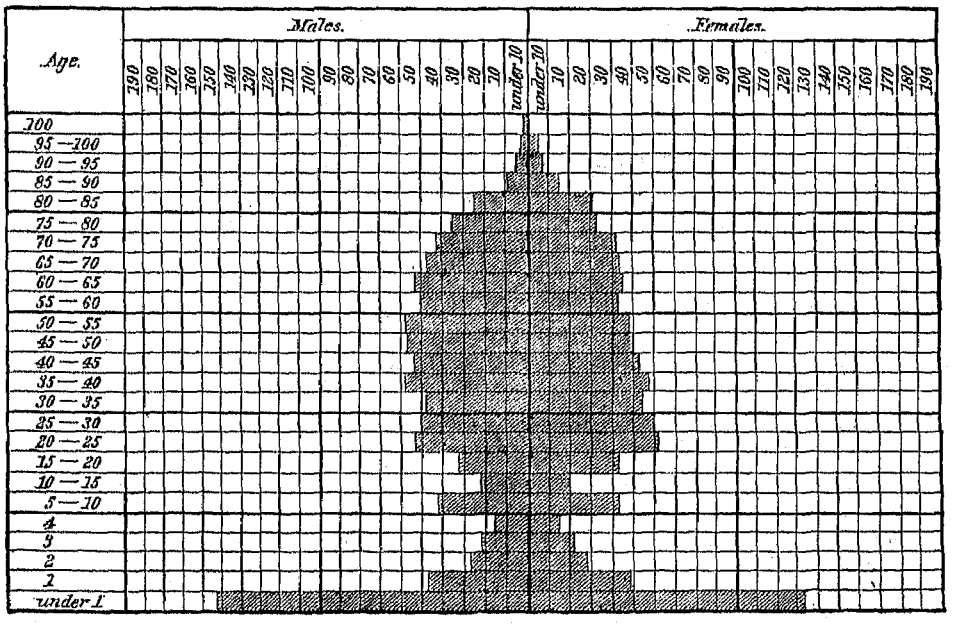


Fig. 5 shows for the deaths of Irish parentage the proportion of deaths at each age, with distinction of sex.

Fig. 6 (p. xxxi) shows the same for the population of German descent.

In the deaths of persons of Irish parentage the proportion of females is greater than that for males between the ages of 15 and 45, that is, for the child-bearing period, while for the males it is greatest from 50 to 75.

In the deaths of German parentage the same variation appears, but the excess of deaths of males at the ages of 45 to 80 is more strongly marked. The German mortality in infancy is proportionately decidedly greater than that of the Irish, as is well seen in Fig. 7 (p. xxxi), in which a comparison of the deaths of males of the two races is given. The proportion of deaths at adult ages among the Irish males is decidedly greater than it is among the Germans. How far these peculiarities of age distribution in the deaths depend upon different proportions in the numbers living at these ages it is impossible to say with any accuracy, as we do not know the number of living population of Irish and of German parentage at the different ages.

FIG. 6.—DIAGRAM SHOWING FOR GRAND GROUPS 1, 2, 5, 6, 7, 8, 10, 13, 16, 17, 18, 19, 20, AND 21, WITH DISTINCTION OF SEX, THE PROPORTION OF DEATHS OF PERSONS OF GERMAN PARENTAGE AT EACH AGE AND GROUP OF AGES IN 1000 DEATHS OF PERSONS OF GERMAN PARENTAGE, OF WHICH THE AGES ARE KNOWN.

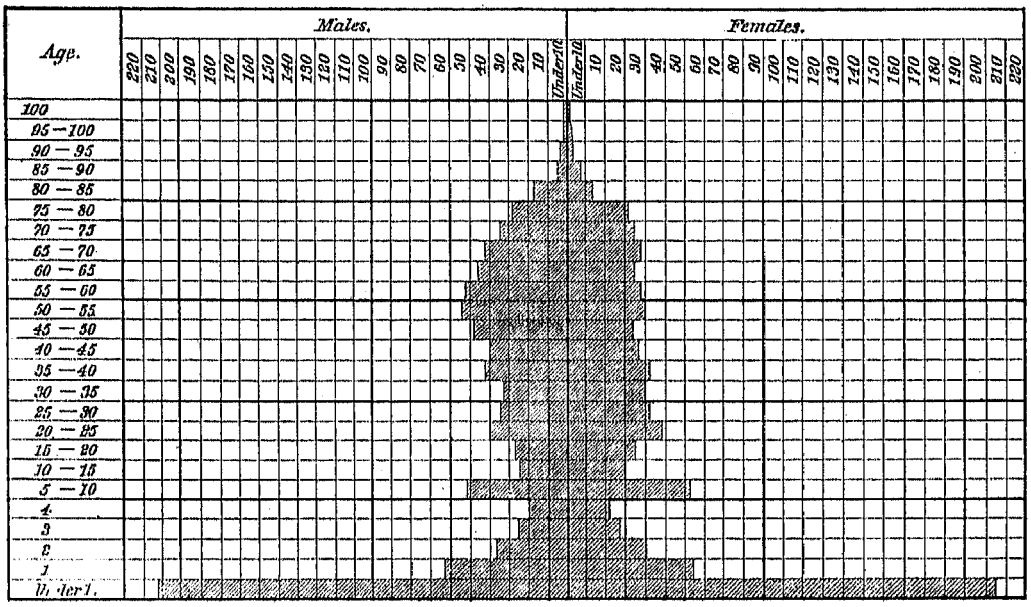


FIG. 7.—DIAGRAM SHOWING FOR GRAND GROUPS 1, 2, 5, 6, 7, 8, 10, 13, 16, 17, 18, 19, 20, AND 21, WITH DISTINCTION OF IRISH AND GERMAN PARENTAGE, THE PROPORTION OF DEATHS AMONG MALES AT EACH AGE AND GROUP OF AGES IN 1000 DEATHS OF PERSONS OF THOSE PARENTAGES OF WHICH THE AGES ARE KNOWN.

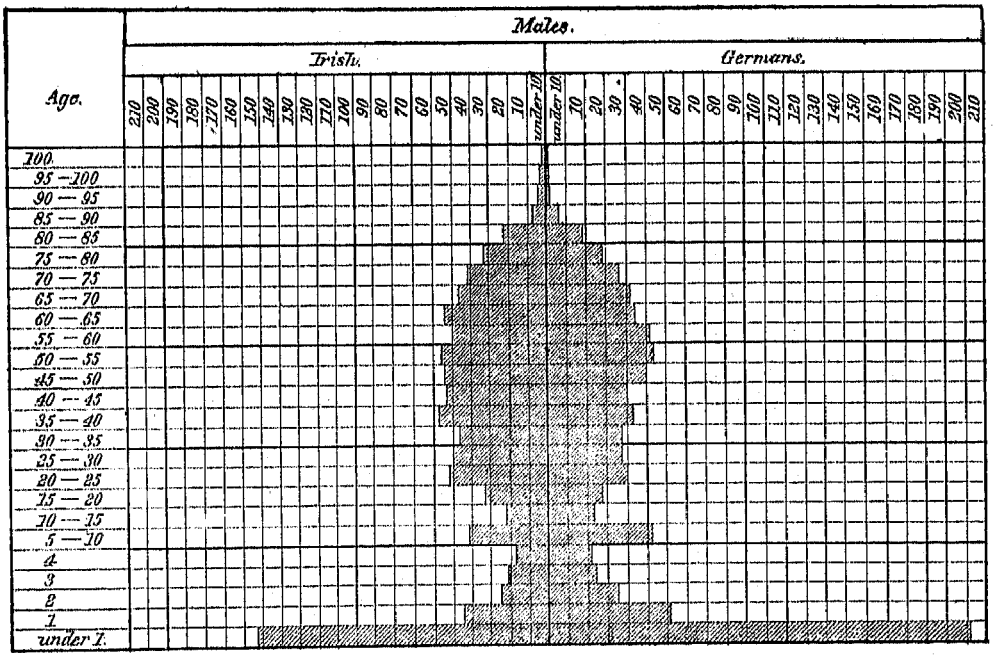


Table XXI, Part II, shows, for certain grand groups in which color distinctions have been made, the number of deaths of white and colored at each age or group of ages in 1000 deaths of which the ages are known, with distinction of sex. The results of the summary of this table are given in Figs. 8, 9, and 10.

FIG. 8.—DIAGRAM SHOWING FOR GRAND GROUPS 2, 3, 4, 8, 9, 11, 12, 14, and 15, WITH DISTINCTION OF SEX, THE PROPORTION OF DEATHS AMONG WHITES AT EACH AGE AND GROUP OF AGES IN 1000 DEATHS AMONG WHITES OF WHICH THE AGES ARE KNOWN.

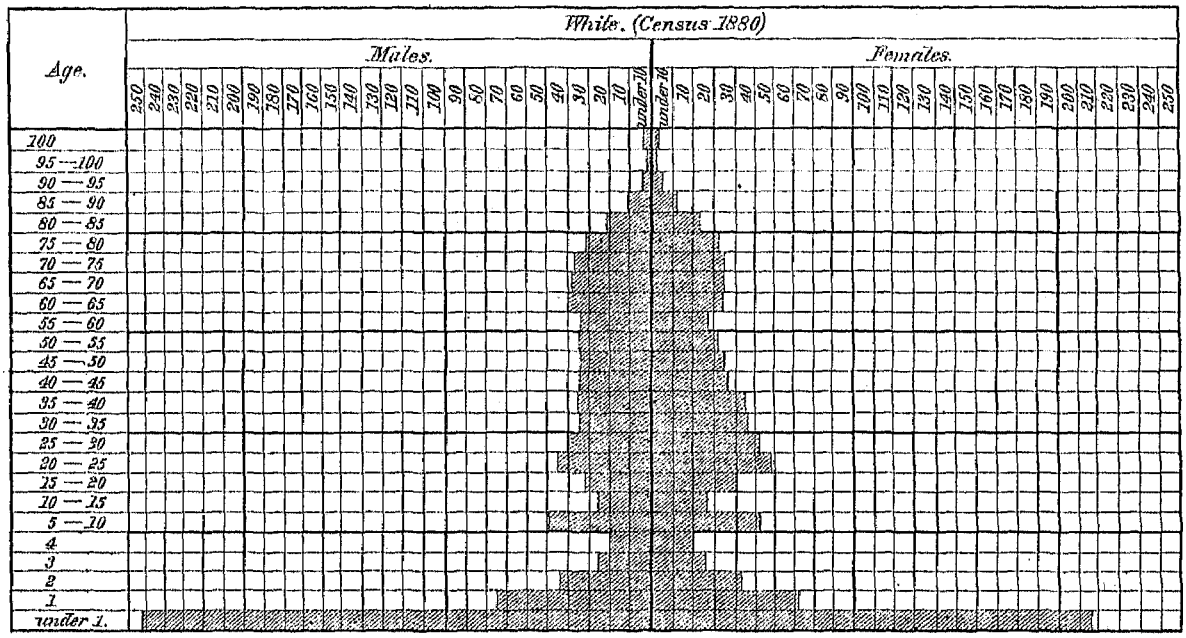


FIG. 9.—DIAGRAM SHOWING FOR GRAND GROUPS 2, 3, 4, 8, 9, 10, 11, 12, 14, AND 15, WITH DISTINCTION OF SEX, THE PROPORTION OF DEATHS AMONG COLORED AT EACH AGE AND GROUP OF AGES IN 1000 DEATHS AMONG COLORED OF WHICH THE AGES ARE KNOWN.

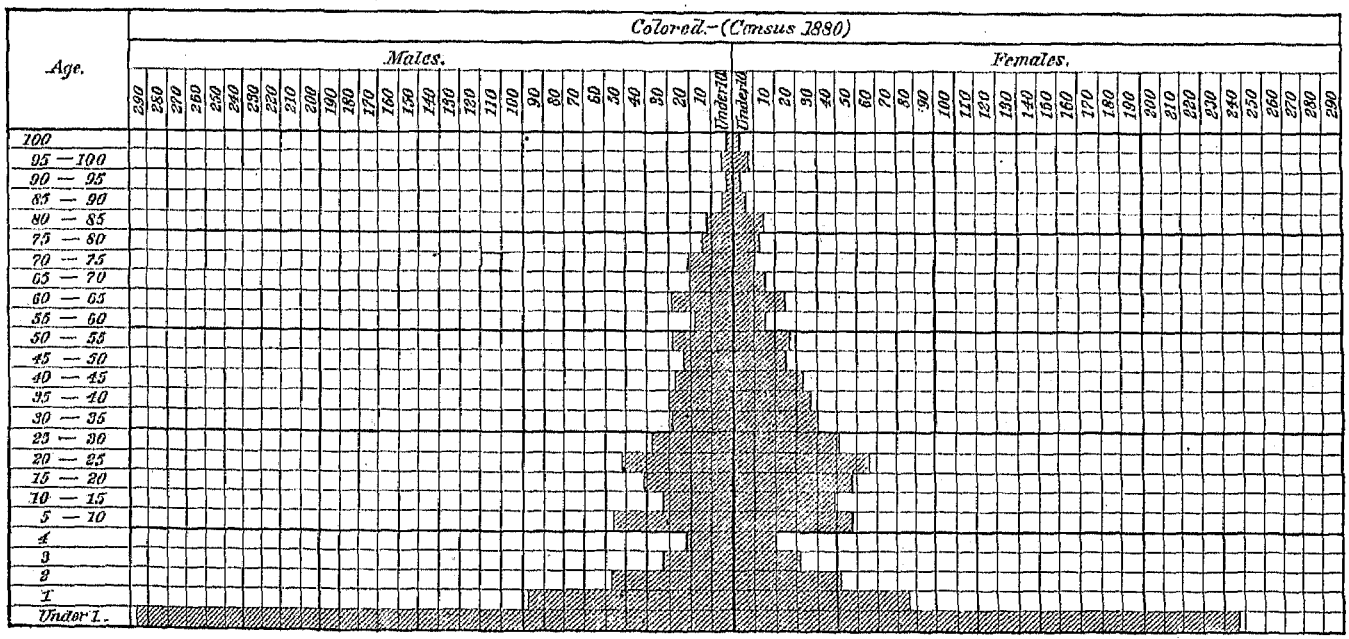
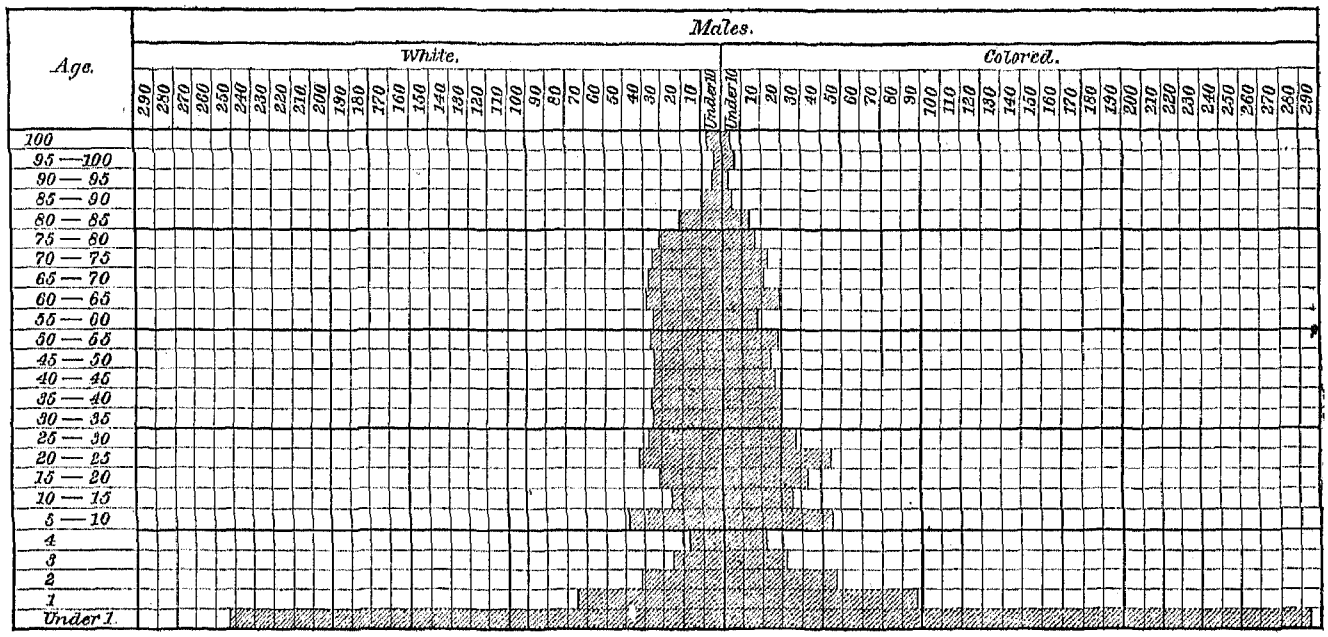


Fig. 8 shows for the deaths among the white population in this region the proportion of deaths at each age, with distinction of sex, and Fig. 9 shows the same for the colored population. The excess of mortality at the lower ages in the colored race is well marked in these diagrams, and is brought out more distinctly in Fig. 10 (p. xxxiii), in which the deaths of the male whites and the male colored are compared.

The excess of mortality in females at the child-bearing ages is well marked in Fig. 9.

The relations of age to certain special causes of death will be considered and illustrated in a subsequent part of this report.

FIG. 10.—DIAGRAM SHOWING FOR GRAND GROUPS 2, 3, 4, 8, 9, 10, 11, 12, 14, AND 15, WITH DISTINCTION OF COLOR, THE PROPORTION OF DEATHS AMONG MALES AT EACH AGE AND GROUP OF AGES IN 1000 DEATHS AMONG MALES OF WHICH THE AGES ARE KNOWN.



While the total proportion of deaths reported as due to unknown causes for deaths of all ages is 49 in 1000, the proportion of deaths reported from unknown causes in children under 1 year of age is 111.2 per 1000; but large as this figure is, it by no means fully represents the number of cases of death at this age in which the cause of death is practically unspecified. We should add to it the greater part, if not all, of those deaths reported as due to inanition, debility, and convulsions, which would give an aggregate of over 250 per 1000, or over 25 per cent. It is, in fact, practically impossible in many cases of death of very young infants to assign any specific definite cause. The child is simply feeble, puny, only half finished as it were, has no store of vitality to meet the vicissitudes of temperature, food, etc., to which it is subjected, and almost all that we can say of it is that it was unable to live. Of the specified causes of death, those which cause the greatest mortality in children under 1 year of age are the diarrhœal diseases, to which are attributed 182 out of every 1000 deaths from specified causes. Next to these in fatality come diseases of the nervous system, including those reported as convulsions, the number of deaths attributed to this last cause under 1 year of age being 75.9 per 1000 of all deaths at this age. Diphtheria and croup combined are reported as causing 60.5 deaths out of every 1000 at this age, diphtheria alone causing 18.1. Pneumonia is reported as causing 59.3 per 1000; inflammation of the brain, meningitis, and hydrocephalus, 50.3 per 1000; hooping-cough, 36.3 per 1000; bronchitis, 23.3 per 1000; measles, 12.8 per 1000; and accidents of all kinds, 25.2 per 1000. A comparison of some of these rates with the rates for all children under 5 years of age is instructive. Thus, out of the total number of deaths from known causes at all ages in children under 5 years of age, measles caused 19.6 per 1000 as against 12.8 for the period under 1 year; diphtheria and croup caused 71.4 per 1000 as against 60.5 under 1 year; hooping-cough caused 37.1 as against 36.3 under 1 year; while diarrhœal diseases caused 172 as against 182 per 1000. It will be seen that of all these causes the diarrhœal forms are the only ones which fall most heavily on the period of infancy.

SECTION V.—COLOR, RACE, ETC., IN RELATION TO MORTALITY.

The influence of race upon the gross mortality rate, on the rates for different ages, and on the proportion dying of certain diseases, appears very marked in the results of comparison of the reports for the white and colored population in the southern portions of the country, and there are indications sufficient to warrant the assertion that the Irish and German population of the United States have also their own peculiarities in these respects.

In a population of 43,402,970 whites there are recorded 640,191 deaths, giving a mortality of 14.74 per 1000. In a population of 6,752,813 colored there are recorded 116,702 deaths, giving a mortality of 17.28 per 1000.

Taking those states east of the Mississippi river which have the largest proportion of colored population, viz, Alabama, District of Columbia, Florida, Georgia, Kentucky, Maryland, Mississippi, North and South Carolina, Tennessee, Virginia, and Louisiana (including in this last that part west of the river also), we find that the total

white population is 8,053,962, and the number of deaths of whites recorded is 113,110, giving a death rate of 14.04 per 1000. The colored population of the same states is 5,303,267, and the number of deaths among these is reported as 91,328, giving a death rate of 17.22 per 1000.

In this section of the country the deficiencies in the enumerators' returns of deaths are above the average, and they are greater for the colored than for the white population, so that the difference between the mortality rates of the two races is greater than that indicated above.

Table XI affords materials for a study of the influence of race in relation to the cause of death, so far as the negro is concerned. The localities selected for this purpose are those in which the proportion of the colored population is sufficiently large to make of value a separate compilation of the facts relating to them.

The same distinction is made in Table XXI, Part II, and some of the peculiarities thus indicated will be referred to in commenting on some of the principal causes of death.

Table XII indicates the relations of Irish or German parentage to causes of death for those parts of the country in which the proportion of population of Irish and German descent is greatest. Unfortunately, as explained in the prefatory remarks, we have not the number of living population of Irish and German descent at the several ages to compare with the figures of this table, but the data given afford material for some interesting comparisons among themselves, as will be indicated hereafter.

Table XX, Part II, shows, for those grand groups containing the larger number of persons of Irish and German parentage, the proportions of death at each age and group of ages in one thousand deaths of which the ages are known, for the Irish and German races.

In comparing Tables XX and XXI, Part II, with each other, and with Table XVI, Part II, which shows the proportion of deaths at different ages for the whole population, it must be borne in mind that the proportion of adults is much greater in the population of Irish and German descent, a large part of which is derived from direct immigration, than it is in the native whites and colored; and hence that in the latter there will be a greater proportion of deaths in infancy and childhood. Thus, among the Irish males the number of deaths under 1 year of age out of 1000 deaths reported is 153.59, and among the German males of the same age, 211.95; while for the population of the whole country the proportion of deaths per 1000 which occur under 1 year of age in males is 248.22, and in the southern groups it is, for the white males, 252.86, and for the colored, 296.12. The proportion of deaths occurring under 5 years of age is greater among the German than among the Irish, being for the former, males, 357.66; females, 373.86, and for the latter, males, 265.55; females, 246.82 per 1000 of all deaths.

In the southern groups, among the colored population, over half the deaths of males reported, or 507.16 per 1000, occur under 5 years of age, and for the colored females, 438.47 deaths out of every 1000 reported are under 5 years. This excess of infantile mortality in the colored race occurs in each grand group in which the distinction of color is made, and is the main cause of the excess of mortality in the colored race over the white.

Tables IX and X, giving the deaths of the Chinese and Indian population of the United States by age and sex, with specification of cause, are compiled from data which are so imperfect that no comparisons can be drawn between the number of deaths in these races to the number of living population; and the number of deaths reported is so small that it is necessary to be very cautious in drawing conclusions as to the proportion which one class of deaths bears to others, or which the number of deaths at any given age bears to those of other ages.

Table X shows the number of deaths as occurring among Indians not collected on reservations. Some statistics relating to the Indians on reservations were collected under the direction of Major J. W. Powell, Director of the United States Geological Survey, and from the data furnished by him the following tables have been compiled. It will be seen that the census enumerators report 903 deaths among Indians, of which 463 were males and 440 females. The data collected on the reservations under the direction of Major Powell include 1,859 deaths—974 males, 864 females, with 21 of unknown sex. These 1,859 deaths are reported as occurring in a population of 78,521 persons, giving a death rate of 23.6 per 1000.

TABLE 12.—SHOWING FOR A TOTAL POPULATION OF 78,521 INDIANS, COLLECTED ON RESERVATIONS, THE NUMBER REPORTED AS DYING DURING THE CENSUS YEAR, WITH DISTINCTION OF SEX AND OF CERTAIN CAUSES OF DEATH.

Deaths from—	Total.	Male.	Female.	UNDER 5 YEARS.		ABOVE 5 YEARS.		UNKNOWN.		Remarks.
				Male.	Female.	Male.	Female.	Male.	Female.	
Total	1,859	974	864	267	253	354	332	365	267	
Measles	109	57	52	4	6	4	7	49	39	
Scarlet fever	14	8	6	5	2	2	2	1	2	
Diphtheria	*61	23	37	16	21	6	13	1	3	* 1 sex and age unknown.
Enteric fever	27	10	17	3	2	5	6	3	8	
Diarrhœal diseases	133	68	65	37	38	8	12	23	15	
Malarial diseases	*56	32	21	7	11	9	5	16	5	* 3 sex and age unknown.
Erysipelas	11	6	5	2	2	3	.....	1	3	
Venereal diseases	57	34	23	5	4	17	10	12	9	

TABLE 12—Continued.

Diseases.	Total.	Male.	Female.	UNDER 5 YEARS.		ABOVE 5 YEARS.		UNKNOWN.		Remarks.
				Male.	Female.	Male.	Female.	Male.	Female.	
Parasitic diseases	12	10	2	8	2	2	.....	.....	.....	
Rheumatism	7	4	3	.....	.....	4	3	.....	.....	
Scrofula and tabes	59	28	31	12	13	5	7	11	11	
Consumption	*342	179	161	27	15	109	117	43	29	* 2 sex and age unknown.
Cancer	5	2	3	.....	.....	1	3	1	.....	
Tumor	3	1	2	.....	.....	1	1	.....	1	
Diseases of the nervous system	64	33	31	13	14	15	11	5	3	
Diseases of the circulatory system	33	22	11	1	1	17	11	3	.....	
Diseases of the respiratory system	76	33	43	6	10	1	2	26	34	
Bronchitis	10	3	7	5	1	2	2	2	4	
Pneumonia	100	60	40	10	14	41	22	18	4	
Diseases of the digestive system	*36	18	17	6	5	5	5	7	7	* 1 sex and age unknown.
Diseases of the urinary system	10	8	2	1	.....	4	2	3	.....	
Diseases of the generative system	6	.....	6	.....	.....	.....	4	.....	2	
Dis. connected with pregnancy	27	.....	27	.....	.....	.....	27	.....	.....	
Diseases of the bones and joints	3	2	1	1	.....	1	.....	1	.....	
Dis. of the skin and cellular tissue	3	1	2	1	1	.....	.....	1	.....	
Diseases of the spleen	.....	.....	.....	.....	.....	.....	.....	.....	.....	*
Accidents and injuries	102	63	39	3	8	43	20	20	8	
Other diseases and unknown causes	*478	254	210	94	83	49	40	115	83	* 14 sex and age unknown.

Table 13 shows for the whites and the colored in those grand groups in which the distinction of color is tabulated, viz, Grand Groups 2, 3, 4, 8, 9, 10, 11, 12, 14, and 15, and for the total deaths reported among Indians in the United States, including both those on and off the reservations, the total number of deaths, and the number of deaths from certain specified causes, with distinction of sex:

TABLE 13.—DEATHS FROM SPECIFIED CAUSES AMONG WHITES, COLORED, AND INDIANS.

Deaths from—	WHITES.			COLORED.			INDIANS.			Sex not stated.
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	
Grand total	344,856	178,011	166,845	107,873	53,359	54,514	2,762	1,457	1,304	21
Measles	3,029	1,435	1,594	1,715	920	795	124	62	62	.....
Scarlet fever	7,009	3,441	3,568	372	187	185	21	13	8	.....
Diphtheria	13,152	6,360	6,792	1,080	802	818	75	26	48	1
Enteric fever	11,170	5,753	5,417	3,064	1,488	1,576	49	24	25	.....
Diarrhœal diseases	13,006	6,871	6,135	3,516	1,881	1,635	161	84	77	.....
Malarial fever	10,132	5,008	5,064	4,695	2,393	2,272	84	45	36	3
Venereal diseases	563	301	262	299	158	141	70	40	30	.....
Scrofula and tabes	2,072	1,037	1,035	1,547	775	772	69	32	37	.....
Consumption	41,033	18,038	22,995	13,430	5,304	8,126	576	291	283	2
Cancer and tumor	7,087	2,637	4,450	952	238	714	17	8	9	.....
Diseases of the nervous system	39,328	21,163	18,165	9,360	4,897	4,463	108	57	51	.....
Diseases of the circulatory system	13,062	7,014	6,048	2,664	1,230	1,434	42	28	14	.....
Bronchitis	5,689	2,910	2,779	1,239	648	591	20	11	9	.....
Pneumonia	27,207	15,197	12,010	10,186	5,655	4,531	206	128	78	.....
Other diseases of the respiratory system	14,707	8,034	6,763	3,271	1,726	1,545	95	43	52	.....
Diseases of the digestive system	15,475	8,236	7,239	4,707	2,523	2,274	64	35	28	1
Diseases of the urinary system	6,346	4,189	2,157	934	674	260	16	13	3	.....
Diseases of the female organs of generation	1,049	.....	1,049	498	.....	498	8	.....	8	.....
Affections connected with pregnancy	3,007	.....	3,007	1,477	.....	1,477	47	.....	47	.....
Accidents and injuries	14,453	10,572	3,881	6,526	3,947	2,579	155	102	53	.....
Total	249,866	128,855	121,011	72,102	35,506	36,686	2,007	1,042	958	7
Other diseases and unknown causes	94,990	49,156	45,834	35,681	17,853	17,828	755	395	346	14

From the data given above has been computed the following table (Table 14), showing for whites, colored, and Indians the proportion per 1000 of known causes dying from each of certain specified causes, and thus indicating the relative frequency of these causes of deaths among whites, colored, and Indians, respectively. It will be found interesting to compare this with Table XV, Part II, giving corresponding data for the total population of the country.

TABLE 14.—SHOWING FOR WHITES, COLORED, AND INDIANS THE PROPORTION OF DEATHS FROM CERTAIN SPECIFIED CAUSES, PER 1000 TOTAL DEATHS OF WHICH THE CAUSES ARE KNOWN.

Deaths from—	WHITES.			COLORED.			INDIANS.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
Measles	12.12	11.13	13.17	23.75	25.91	21.67	61.78	59.50	64.71
Scarlet fever	28.05	26.70	29.48	5.15	5.26	5.04	10.46	12.47	8.35
Diphtheria	52.63	49.35	56.12	23.27	24.27	22.29	37.36	24.95	50.10
Enteric fever	44.70	44.64	44.67	42.44	41.90	42.95	24.41	23.03	26.09
Diarrhœal diseases	52.05	53.32	50.60	48.70	52.97	44.56	80.21	80.61	80.37
Malarial fever	40.54	39.33	41.84	64.61	67.30	61.93	41.85	43.18	37.57
Venereal diseases	2.25	2.33	2.16	4.14	4.44	3.84	34.87	38.38	31.31
Scrofula and tabes	8.29	8.04	8.55	21.42	21.82	21.04	34.37	30.71	38.02
Consumption	166.62	144.64	190.02	186.03	149.38	221.50	286.99	279.27	295.40
Cancer and tumor	28.36	20.46	36.77	13.18	6.70	19.46	8.47	7.67	9.39
Diseases of the nervous system	157.39	164.23	150.11	129.65	137.92	121.65	53.81	54.70	53.23
Diseases of the circulatory system	54.67	54.51	54.93	30.90	34.64	30.08	20.92	26.87	14.61
Bronchitis	22.76	22.58	22.96	17.16	18.25	16.10	9.96	10.55	9.39
Pneumonia	108.88	117.93	99.24	141.09	159.26	123.50	102.64	122.84	81.41
Other diseases of the respiratory system	59.21	62.36	55.88	45.30	48.61	42.11	47.33	41.26	54.27
Diseases of the digestive system	61.93	63.91	59.82	66.44	71.05	61.98	31.88	33.58	29.22
Diseases of the urinary system	25.39	32.50	17.81	12.93	18.98	7.08	7.97	12.47	3.13
Diseases of the female organs of generation	8.06	.....	8.06	13.57	.....	13.57	8.35	.....	8.35
Affections connected with pregnancy	24.84	.....	24.84	40.26	.....	40.26	49.06	.....	49.06
Accidents and injuries	57.84	82.04	32.07	90.39	111.16	70.29	77.22	97.98	55.32

(See Fig. 11, p. xxxvii.)

This table indicates that the proportion of deaths among Indians from measles, diarrhœal diseases, malarial fever, venereal diseases, scrofula, consumption, affections connected with pregnancy, and accidents and injuries, is greater than among the whites, while the deaths from scarlet fever, diphtheria, typhoid fever, cancer, diseases of the nervous system, diseases of the circulatory system, bronchitis, pneumonia and other diseases of the respiratory system, and diseases of the urinary organs, are less in proportion among the Indians.

The high proportion of deaths among the Indians which is reported as due to venereal diseases is noteworthy, but probably a part of this is due to a greater readiness to name the true cause among these people than exists among the whites.

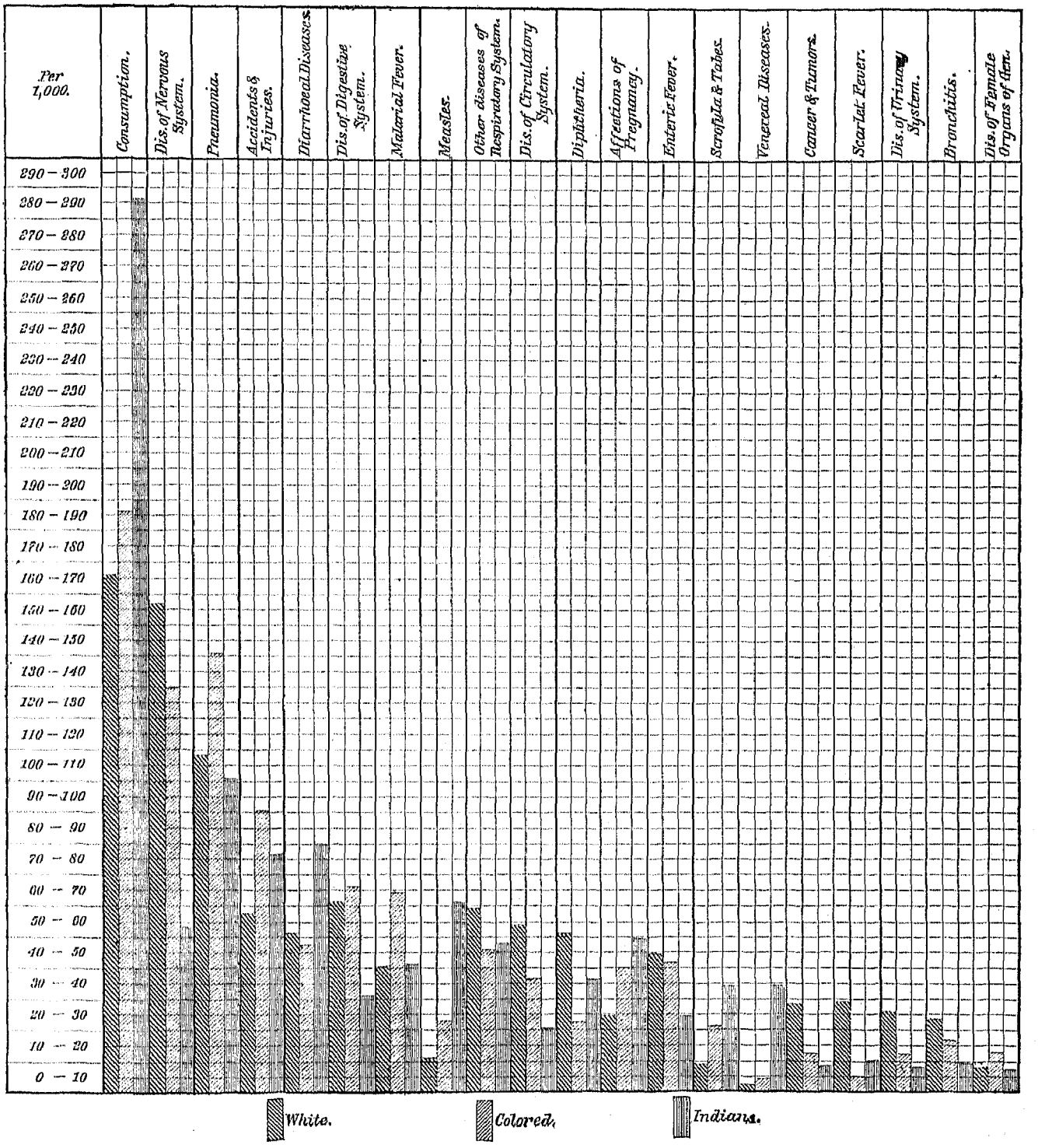
We have no means of estimating the amount of deficiency in these reports of deaths among Indians, but it is probably at least as great as that among the colored population.

The variations in the death rates among Indians according to locality are shown in the following table:

TABLE 15.—SHOWING, WITH DISTINCTION OF SEX, FOR INDIANS ON RESERVATIONS IN CERTAIN STATES AND TERRITORIES THE NUMBER OF DEATHS AND THE PROPORTION PER 1000 OF LIVING POPULATION.

States and Territories.	NUMBER OF DEATHS.				Population.	Deaths per 1000 of population.
	Total.	Male.	Female.	Unknown.		
Total	1,858	975	862	21	78,521	23.6
Arizona	48	19	17	12	5,898	8.1
California	93	49	43	1	4,211	22.0
Dakota	269	137	132	.....	17,092	15.7
Idaho	56	29	27	.....	2,782	20.1
Indian territory	264	142	122	.....	9,379	28.1
Iowa	14	3	7	4	360	38.8
Kansas	34	19	15	.....	611	55.6
Michigan	275	145	126	4	8,888	30.9
Montana	175	89	86	.....	8,417	20.7
Nebraska	93	50	43	.....	1,254	74.1
Nevada	145	80	65	.....	4,564	31.7
North Carolina	35	18	17	.....	1,689	20.7
Oregon	100	52	48	.....	4,156	24.0
Pennsylvania	6	6	.....	.....	164	36.5
Utah	10	5	5	.....	466	21.4
Washington	192	104	88	.....	7,937	24.1
Wisconsin	49	28	21	.....	653	75.0

FIG. 11.—DIAGRAM SHOWING FOR WHITES, COLORED, AND INDIANS, THE PROPORTION OF DEATHS FROM SPECIFIED DISEASES IN 1000 DEATHS FROM KNOWN CAUSES.



Notwithstanding the imperfection of the data relative to deaths among Indians, these figures are the most extensive and complete which have yet been gathered with regard to the mortality of this race, and it seems very evident that the death rate among them is a comparatively high one, being probably not far from 30 per 1000.

An important question in this connection is as to how far the excessive mortality in the colored population is due directly to race characteristics, that is to less vital force or capacity to resist disease and death, or to peculiar susceptibility to certain destructive forms of disease; and how far it is due to the fact that the great mass of the colored population is poor and ignorant, lives in the midst of unhealthy surroundings, in the dampest and dirtiest parts of cities, has poor food, and is, in other respects, unusually exposed to well-recognized causes of disease. If we could separate the vital statistics of the poor and ignorant whites, the tenement-house population of our northern cities, from those of the mass of the white population, we should undoubtedly find a high rate of mortality in this class, and especially in infancy and childhood.

That the colored race is peculiarly liable to certain forms of disease, and is less liable than the white race to certain other forms of disease, will appear when we come to consider the statistics of individual causes of death; but when we take into account the effects of climate and soil moisture, the great majority of the colored population being in the South, it is hard to say whether the negro in this region, under the same circumstances as the white, would be shorter lived or not.

In the rural districts the mortality of the negro is not excessive; it is in the cities and towns, where he is brought into close contact with the evils and vices of civilization, that he dies so rapidly.

The same considerations apply, to a considerable extent, in the study of the mortality of the Irish and Germans, and of the Indians.

I do not mean to assert that race has no influence *per se* on longevity, but as yet we have not sufficiently accurate and complete data to prove what this influence is. This remark has reference to gross mortality rates or to longevity only; when we come to consider the mortality at different ages or from different causes, the influence of race becomes very evident. Fig. 12 (p. xxxix) shows for Irish and German parentage, and Fig. 13 (p. xxxix) for white and colored, some of the relations of race to certain causes of death. This, however, will be more fully discussed in speaking of individual causes of death.

TABLE 16.—SHOWING FOR TEN GRAND GROUPS, 2, 3, 4, 8, 9, 10, 11, 12, 14, 15, WITH DISTINCTION OF WHITE AND COLORED, AND FOR FOURTEEN GRAND GROUPS, 1, 2, 5, 6, 7, 8, 10, 13, 16, 17, 18, 19, 20, 21, WITH DISTINCTION OF IRISH AND GERMAN PARENTAGE, THE NUMBER OF DEATHS FROM CERTAIN SPECIFIED CAUSES IN 1000 DEATHS FROM ALL CAUSES.

Deaths from—	White.	Colored.	Irish parentage.	German parentage.
Abortion	0.9	1.4	0.5	0.8
Accidents and injuries	43.8	67.6	61.0	52.5
Alcoholism	2.5	0.7	6.7	2.7
Cancer	19.1	7.8	24.3	25.8
Child-birth	13.9	24.8	14.1	18.3
Consumption	126.2	139.1	198.4	123.6
Croup	26.1	21.8	15.1	23.2
Diphtheria	30.8	17.4	42.1	72.7
Diseases of the bones and joints	3.1	2.0	3.1	2.5
Diseases of the digestive system	46.8	49.6	43.8	47.1
Diseases of the nervous system	110.1	96.9	94.7	109.4
Enteric fever	33.9	31.7	17.4	29.6
Heart disease and dropsy	56.1	64.5	62.3	60.9
Hooping-cough	14.3	33.0	6.0	8.4
Infanticide	0.05	0.14	.....	0.02
Malarial fever	30.7	48.3	12.9	14.1
Measles	9.1	17.7	5.3	8.5
Peritonitis	4.9	2.1	6.8	6.4
Pleurisy	2.7	3.7	2.9	2.6
Pneumonia	82.5	105.5	89.1	82.1
Puerperal septicæmia	12.6	10.2	12.5	15.7
Scarlet fever	20.9	3.9	24.0	30.1
Scrofula and tabes	6.2	16.0	2.7	2.6
Still-born	36.4	39.6	24.7	34.9
Suicide	3.2	0.5	2.7	7.2
Tetanus and trismus nascentium	3.1	9.3	1.6	2.2
Venereal diseases	1.7	3.0	1.4	1.3

FIG. 12.—DIAGRAM SHOWING FOR IRISH AND GERMAN PARENTAGE IN GRAND GROUPS 1, 2, 5, 6, 7, 8, 10, 13, 16, 17, 18, 19, 20, AND 21, THE PROPORTION OF DEATHS FROM SPECIFIED DISEASES IN 1000 DEATHS FROM KNOWN CAUSES.

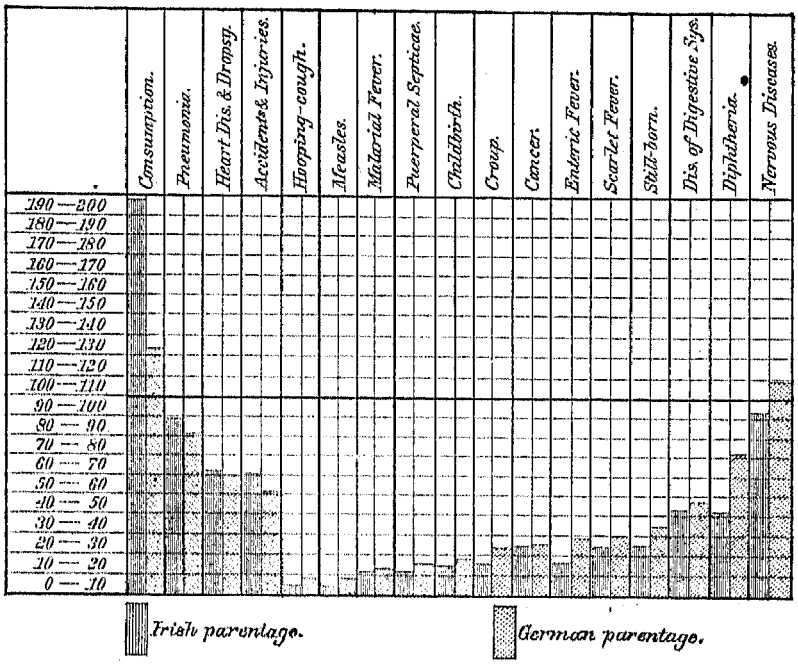
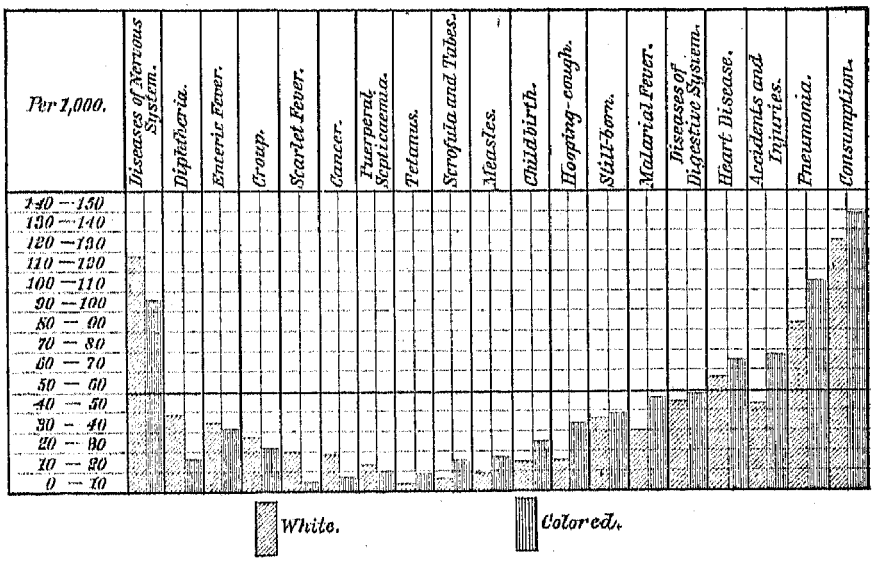


FIG. 13.—DIAGRAM SHOWING FOR WHITE AND COLORED IN GRAND GROUPS 2, 3, 4, 8, 9, 11, 12, 14, AND 15, THE PROPORTION OF DEATHS FROM SPECIFIED DISEASES IN 1000 DEATHS FROM KNOWN CAUSES.



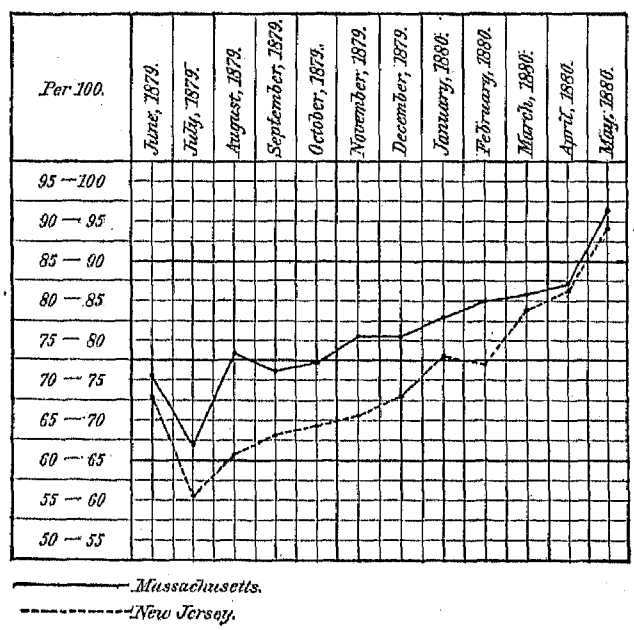
SECTION VI.—MONTH OR SEASON IN RELATION TO DEATHS.

That the general death rate varies with the season, and more especially that the mortality from certain causes depends very largely upon temperature, humidity, and the movements of the atmosphere, is well known.

In attempting to ascertain from the census records what the influence of month or season in certain regions is as regards either the general death rate or the death rate from certain specified causes, we are met by special difficulties, owing to the fact that by the method of collecting the records of deaths at the end of the year the deficiency in the number of deaths reported increases in proportion to the distance of time from the date of enumeration, owing to defective memory on the part of those furnishing the information to the enumerator, and to migrations, extinctions of families, etc., and hence that the results of tabulating such data must be used with caution, except where they are derived from a system of current registration, as in Massachusetts and New Jersey and the large cities.

The deficiency due to the lapse of time between the date of the death and the date of collecting the information with regard to it has been calculated for the state of Michigan by Dr. H. B. Baker, (*a*) secretary of the state board of health. Upon comparing the results of the enumerations of death made for the Ninth United States Census,

FIG. 14.—DIAGRAM SHOWING FOR MASSACHUSETTS AND NEW JERSEY, BY MONTHS, THE PERCENTAGE OF DEFICIENCY OF THE ENUMERATORS' RETURNS OF DEATHS IN THE CENSUS OF 1880.



for the year ending June 1, 1870, with the statistics collected by the state officials in May, 1870, and May, 1871, he concluded that the discrepancy between the statistics collected by the two classes of officers was mainly due to the length of time which had elapsed between the date of death and the time of collection. The enumeration of deaths was performed by the census marshals in the same manner as by the supervisors, and he therefore assumed that the omissions were in about the same proportion.

From this he concluded that a "delay of one year in returns results in omissions which require that the deaths returned be increased by 98.09 per cent., and that the delay of one month requires that they be increased to one-tenth 98.09 per cent., with corresponding proportions for intervening periods of time". From these data he concludes (page 162) "that the 9,040 deaths returned by registration officers would have been 16,802 if enumerated in months of occurrence".

I have had somewhat similar calculations made for the states of Massachusetts and New Jersey and for certain cities. For these states and cities the actual number of deaths occurring in each month is given by a fairly satisfactory system of registration, based on burial certificates.

(*a*) *Fifth annual Report of the Secretary of State of the State of Michigan*, relative to the registering and return of births, marriages, and deaths for the year 1871. Lansing, 1874, pages 158–163.

The following table (Table 17) shows the number of deaths reported by registration and by the census enumerators, respectively, with distinction of sex, for each month of the census year in the states of Massachusetts and New Jersey and in five specified cities:

TABLE 17.

Months.	New Jersey.	Massachusetts (exclusive of Boston).	Milwaukee, Wisconsin.	Wilmington, Delaware.	Providence, Rhode Island.	Pittsburgh, Pennsylvania.	Richmond, Virginia.
Registration returns, total	18,474	25,050	2,369	910	2,259	3,293	1,574
Enumerators' returns, total	13,534	19,781	1,516	538	1,594	2,056	1,088
Registration returns M.	9,524	12,961	1,267	462	1,126	1,688	781
Enumerators' returns M.	7,271	10,070	853	296	883	1,112	557
Registration returns F.	8,950	12,089	1,102	448	1,133	1,605	793
Enumerators' returns F.	6,263	9,711	663	242	711	944	531
R. R., June, 1879 M.	637	881	91	38	64	108	70
E. R., June, 1879 M.	472	677	53	20	42	57	49
R. R., June, 1879 F.	625	936	66	26	71	120	83
E. R., June, 1879 F.	413	646	39	15	45	54	55
R. R., July, 1879 M.	1,030	1,145	123	40	94	182	64
E. R., July, 1879 M.	621	752	62	23	76	96	33
R. R., July, 1879 F.	945	1,076	96	47	100	171	83
E. R., July, 1879 F.	532	687	42	16	46	95	46
R. R., August, 1879 M.	907	1,293	128	31	96	159	76
E. R., August, 1879 M.	625	947	81	25	72	111	47
R. R., August, 1879 F.	888	1,146	124	45	87	102	67
E. R., August, 1879 F.	561	860	61	13	54	87	39
R. R., September, 1879 M.	735	959	122	20	68	136	67
E. R., September, 1879 M.	529	743	74	18	38	92	35
R. R., September, 1879 F.	733	904	102	32	74	120	73
E. R., September, 1879 F.	438	698	57	16	40	68	41
R. R., October, 1879 M.	721	913	95	20	92	121	62
E. R., October, 1879 M.	485	731	45	22	62	83	42
R. R., October, 1879 F.	643	1,015	74	35	80	80	55
E. R., October, 1879 F.	430	714	52	16	51	56	34
R. R., November, 1879 M.	658	883	91	45	103	117	53
E. R., November, 1879 M.	480	673	61	23	77	70	42
R. R., November, 1879 F.	630	870	66	42	102	124	65
E. R., November, 1879 F.	437	698	38	17	57	51	36
R. R., December, 1879 M.	741	907	97	36	116	127	65
E. R., December, 1879 M.	555	759	60	23	104	75	44
R. R., December, 1879 F.	645	1,010	70	29	108	117	45
E. R., December, 1879 F.	420	733	50	18	72	55	37
R. R., January, 1880 M.	709	1,000	91	35	94	136	56
E. R., January, 1880 M.	613	826	77	16	65	101	45
R. R., January, 1880 F.	733	1,076	91	36	118	124	61
E. R., January, 1880 F.	522	856	49	19	60	64	39
R. R., February, 1880 M.	774	1,020	79	33	104	109	59
E. R., February, 1880 M.	590	891	60	26	83	98	50
R. R., February, 1880 F.	718	1,032	103	30	79	123	65
E. R., February, 1880 F.	524	802	71	20	81	73	41
R. R., March, 1880 M.	819	1,128	114	48	107	142	66
E. R., March, 1880 M.	702	972	96	30	93	111	55
R. R., March, 1880 F.	757	1,257	111	48	91	162	76
E. R., March, 1880 F.	588	1,014	63	31	77	117	54
R. R., April, 1880 M.	764	1,153	116	43	96	170	54
E. R., April, 1880 M.	692	980	83	30	87	120	46
R. R., April, 1880 F.	809	1,156	81	51	103	170	42
E. R., April, 1880 F.	632	979	53	38	65	124	44
R. R., May, 1880 M.	908	1,130	120	48	92	121	78
E. R., May, 1880 M.	840	1,105	97	40	84	98	69
R. R., May, 1880 F.	764	1,112	112	31	102	114	70
E. R., May, 1880 F.	702	1,014	79	23	93	100	65
R. R., unknown	1	.....	.....	.....	.....	.....	2
E. R., unknown	67	14	4	.....	.....	.....	.....
R. R., unknown	1	.....	.....	.....	.....	.....	2
E. R., unknown	64	10	9	.....	.....	.....	.....

The following table, computed from the preceding, shows by months, for the states of Massachusetts and New Jersey, the proportions between the enumerators' returns and the registration returns, and the progressive increase in the deficiency of the enumerators' returns as indicated by this table is shown in Figure 14 (p. xl).

TABLE 18.—SHOWING, FOR MASSACHUSETTS AND NEW JERSEY, BY MONTHS, THE EFFECT OF LAPSE OF TIME UPON THE ENUMERATORS' RETURNS.

Months.	MASSACHUSETTS.			NEW JERSEY.		
	Registration returns.	Enumerators' returns.	Proportion of enumerators' returns to 100 of registration returns.	Registration returns.	Enumerators' returns.	Proportion of enumerators' returns to 100 of registration returns.
June, 1879	1,817	1,323	72.8	1,262	885	70.1
July, 1879	2,221	1,439	64.7	1,975	1,153	58.3
August, 1879	2,379	1,807	75.9	1,855	1,186	63.9
September, 1879	1,953	1,441	73.7	1,468	967	65.8
October, 1879	1,928	1,445	74.9	1,364	915	67.0
November, 1879	1,762	1,371	77.8	1,347	917	68.0
December, 1879	1,917	1,492	77.8	1,386	975	70.3
January, 1880	2,085	1,682	80.6	1,502	1,135	75.5
February, 1880	2,052	1,693	82.5	1,492	1,114	74.6
March, 1880	2,385	1,986	83.2	1,570	1,200	81.8
April, 1880	2,309	1,950	84.8	1,573	1,324	84.1
May, 1880	2,242	2,119	94.5	1,672	1,542	92.2

It will be seen that the proportion of deaths omitted in the enumerators' returns increases in a tolerably regular manner as we go back in time from the date of the enumeration, until we come to the month of June, 1879, a period just a year distant from the time of the census, when the deficiency in the enumerators' returns suddenly diminishes from about 40 per cent., which it was for the preceding month, to about 30 per cent. The explanation of this sudden increase in the proportion of deaths contained in the enumerators' returns for the most distant period of time is, probably, that owing to forgetfulness and confusion of dates after the lapse of so long an interval, a certain number of deaths which really occurred in April or May, 1879, were reported to the enumerators as having occurred in June in that year, and hence were improperly returned as having died during the census year. The proportion of omissions in the enumerators' returns differs according to age and sex, and also according to the intelligence of the class of population making the returns. Those who wish to compute the relative proportion of omissions in various ages, etc., will find some interesting data for this purpose in Tables LII and LIII, Part II, which give for the states of Massachusetts and New Jersey a comparison of the state registration returns and of the enumerators' returns by sex and age, and, in the case of Massachusetts, by color.

The following tables and diagrams show the variation in the deficiencies of the enumerators' returns in relation to age, as shown in the proportion of the number of deaths at each age as reported by registration in Massachusetts and New Jersey to the number reported by the census enumerators for the same ages:

TABLE 19.—SHOWING DIFFERENCE BETWEEN REGISTRATION RETURNS AND ENUMERATORS' RETURNS IN THE STATE OF MASSACHUSETTS IN RELATION TO AGES OF DECEDENTS.

Ages.	Deaths, registration returns.	Deaths, enumerators' returns.	Proportion of enumerators' returns to 100 of registration returns.	Percentage of deficiency in enumerators' returns.
All ages	25,050	19,781	78.96	26.63
Under 5	8,136	5,921	72.77	37.40
5-10	1,120	981	87.58	14.16
10-15	481	417	86.69	15.34
15-20	846	724	85.57	16.85
20-25	1,244	989	79.50	25.78
25-30	1,070	850	79.43	25.88
30-35	924	711	76.94	29.95
35-40	1,003	771	76.86	30.09
40-45	840	669	79.64	25.56
45-50	823	635	77.15	29.60
50-55	819	697	85.10	17.50
55-60	913	752	82.36	21.40
60-65	1,077	899	83.47	19.79
65-70	1,250	1,013	81.04	23.39
70-75	1,202	1,070	82.81	20.74
75-80	1,289	1,057	82.00	21.94
80-85	1,037	890	85.82	16.51
85-90	592	468	79.05	26.49
90-95	221	180	81.44	22.77
95 and over	63	54	85 71	16.66
Unknown	10	33	.....	.....

FIG. 15.—DIAGRAM SHOWING, WITH DISTINCTION OF CERTAIN PERIODS OF AGES, THE PROPORTION OF ENUMERATORS' RETURNS TO THE REGISTRATION RETURNS OF DEATHS IN MASSACHUSETTS AND NEW JERSEY.

(Registration returns=100.)

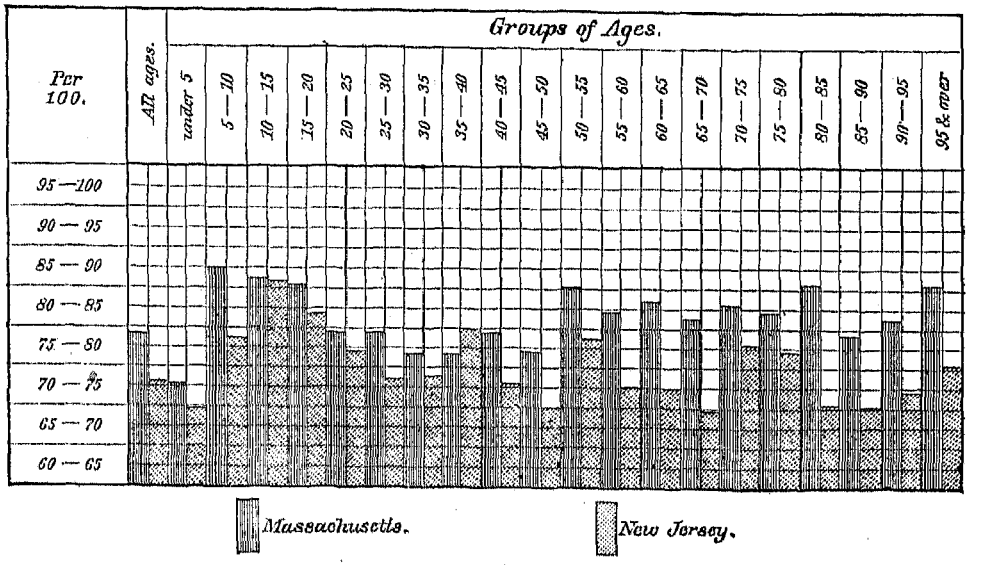


FIG. 16.—DIAGRAM SHOWING, WITH DISTINCTION OF CERTAIN GROUPS OF AGES, THE PROPORTION OF DEATHS PER 1000 OF LIVING POPULATION, REPORTED BY REGISTRATION, TO DEATHS REPORTED BY ENUMERATORS IN NEW JERSEY.

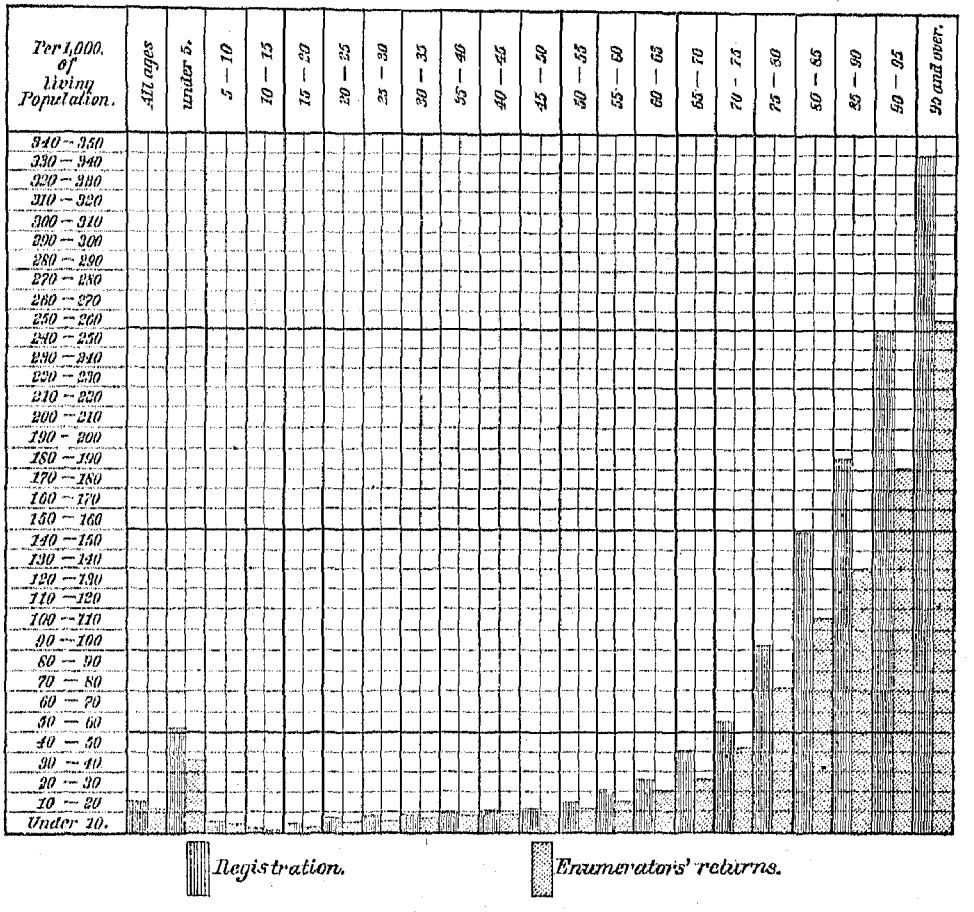


TABLE 20.—SHOWING DIFFERENCE BETWEEN REGISTRATION RETURNS AND ENUMERATORS' RETURNS IN THE STATE OF NEW JERSEY IN RELATION TO AGES OF DECEDENTS.

Ages.	Deaths, registration returns.	Deaths, enumerators' returns.	Proportion of enumerators' returns to registration returns.	Percentage of deficiency in enumerators' returns.
All ages	18,474	13,534	73.25	26.50
Under 5.....	7,027	4,891	69.60	43.67
5-10.....	887	697	78.57	27.25
10-15.....	405	350	86.41	15.71
15-20.....	515	422	81.94	22.03
20-25.....	813	627	77.12	29.66
25-30.....	703	518	73.68	35.71
30-35.....	695	513	73.81	35.47
35-40.....	720	576	80.00	25.00
40-45.....	675	492	72.88	37.19
45-50.....	667	468	70.16	42.52
50-55.....	670	527	78.65	27.13
55-60.....	698	507	72.63	37.67
60-65.....	762	590	77.42	29.15
65-70.....	759	529	69.69	43.47
70-75.....	737	575	78.01	28.17
75-80.....	690	530	76.81	30.18
80-85.....	537	379	70.57	41.68
85-90.....	252	177	70.23	42.37
90-95.....	94	68	72.34	38.23
95 and over	37	28	75.67	32.14
Unknown.....	131	70	.....	.....

TABLE 21.—SHOWING DIFFERENCE BETWEEN REGISTRATION RETURNS OF DEATHS AND ENUMERATORS' RETURNS OF DEATHS IN THE STATE OF NEW JERSEY PER 1000 OF LIVING POPULATION, WITH DISTINCTION OF AGE.

Ages.	Living population.	Deaths, registration returns.	Deaths, enumerators' returns.	Per 1000 of living population according to registration returns.	Per 1000 of living population according to enumerators' returns.
All ages	1,131,116	18,474	13,534	16.33	11.96
Under 5.....	134,716	7,027	4,891	52.16	36.30
5-10.....	130,809	887	697	6.78	5.32
10-15.....	120,424	405	350	3.36	2.90
15-20.....	111,684	515	422	4.61	3.78
20-25.....	108,721	813	627	7.47	5.76
25-30.....	90,607	703	518	7.76	5.72
30-35.....	80,443	695	513	8.63	6.37
35-40.....	78,918	720	576	9.12	7.29
40-45.....	65,800	675	492	10.25	7.47
45-50.....	54,483	667	468	12.24	8.58
50-55.....	47,300	670	527	14.16	11.13
55-60.....	32,998	698	507	21.15	15.36
60-65.....	29,153	762	590	26.13	20.23
65-70.....	18,966	759	529	40.01	27.89
70-75.....	13,374	737	575	55.10	42.99
75-80.....	7,464	690	530	92.44	71.00
80-85.....	3,595	537	379	149.37	105.42
85-90.....	1,358	252	177	185.56	130.33
90-95.....	376	94	68	250.00	180.85
95 and over	100	37	28	339.44	256.88
Unknown.....	.....	131	70	.....	.....

From these it will be seen that the deficiency is greatest at the two extremes of life, viz, under 5 years of age and over 80.

It should be remembered in examining the relations of causes of death to month of death, that the cause of the fatal illness precedes the day of death in each case by some unknown period. When, therefore, we have a higher mortality for a given period, as, for instance, the month of May, this is not to be taken as showing that injurious influences to health were necessarily specially prevalent in that month, since the real causes producing the deaths may have been acting in the March or April preceding. The length of time elapsing between the immediate causes of the fatal illness and its final termination varies, of course, with different diseases.

FIG. 17.—DEATHS BY MONTHS IN MASSACHUSETTS, EXCLUSIVE OF BOSTON, SHOWING FOR EACH MONTH THE PROPORTION PER 1000 OF TOTAL DEATHS OCCURRING DURING THE YEAR.

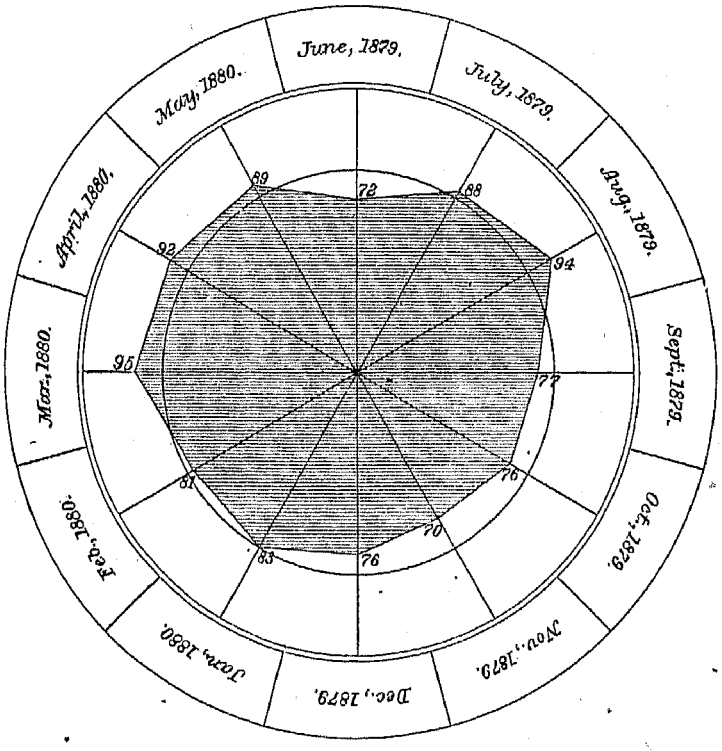
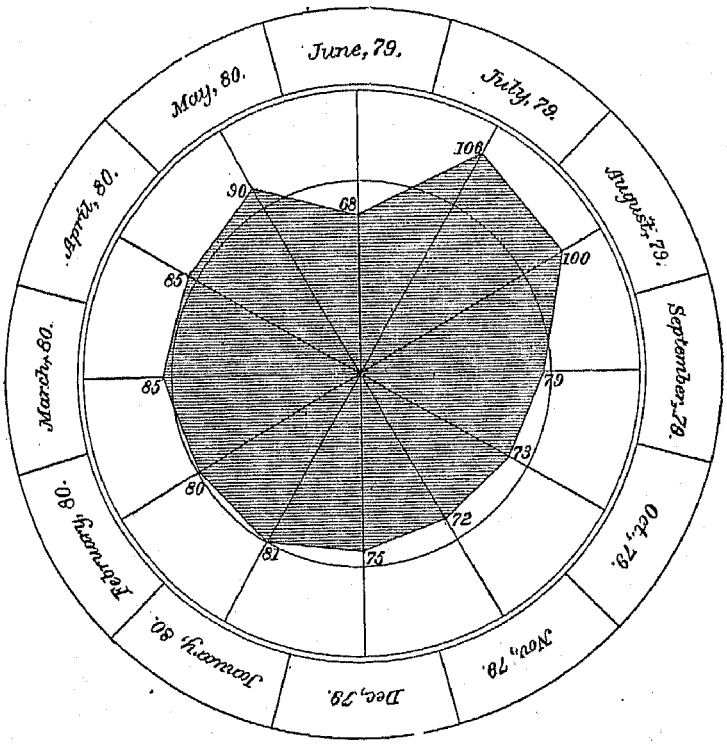


FIG. 18.—DEATHS BY MONTHS IN NEW JERSEY, SHOWING FOR EACH MONTH THE PROPORTION PER 1000 OF TOTAL DEATHS OCCURRING DURING THE YEAR.



It is so brief, for example, in the acute diarrhœal affections of infancy, that it may be only a day or two, while in some diseases of the respiratory organs its duration is to be reckoned by months. For the reasons indicated above, it has not been thought worth while to make any detailed studies of the distribution of deaths in relation to the month or season of death for state groups or for grand groups. It is only in those cities and states where the deaths have been registered at the time of their occurrence that the data are sufficiently complete to make such computations scientifically valuable, although, no doubt, here and there some interesting suggestions can be obtained from them if taken in conjunction with the meterological records of the several regions. The necessary data for such studies are given in Table XIV, Part II. The relations of season to deaths from certain specific causes will be referred to hereafter in discussing special causes of death.

The following tables and diagrams show the influence of season upon general mortality for the thirty-one cities whose registration reports were obtained, these being the only localities from which the returns of deaths are sufficiently complete to make such calculations of any value, without corrections and adjustments:

TABLE 22.—SHOWING DEATHS REPORTED BY REGISTRATION RETURNS FOR 31 LARGE CITIES, WITH DISTINCTION OF MONTHS, AND THE PROPORTION FOR EACH MONTH PER 1000 OF TOTAL DEATHS OF WHICH THE MONTHS ARE KNOWN.

Months.	DEATHS.			PER 1000 OF DEATHS OF WHICH THE MONTHS ARE KNOWN.		
	Total.	Male.	Female.	Total.	Male.	Female.
Total for year....	147,168	77,725	69,933	.....	.....	.....
January	11,810	6,110	5,700	80.25	79.12	81.50
February	11,702	6,180	5,582	70.92	80.02	79.82
March	12,410	6,440	5,973	84.30	83.47	85.41
April	12,806	6,704	6,102	87.03	86.81	88.54
May	12,911	6,900	6,011	87.73	89.34	85.95
June	11,573	6,090	5,483	78.64	78.86	78.40
July	15,566	8,245	7,321	105.77	106.76	104.68
August.....	13,100	6,906	6,200	89.06	89.42	88.65
September.....	11,294	5,956	5,338	76.74	77.12	76.33
October.....	10,881	5,717	5,164	73.94	74.03	73.84
November	11,107	5,777	5,330	75.47	74.80	76.21
December	11,820	6,192	5,637	80.38	80.18	80.60
Month unknown.....	4	2	2	.....	.....	.....

For the individual registration cities the data of deaths by months are given in Table XXII, Part II.

TABLE 23.—SHOWING DEATHS IN MASSACHUSETTS (EXCLUSIVE OF BOSTON) AND NEW JERSEY, WITH DISTINCTION OF MONTHS, AND PROPORTION FOR EACH MONTH PER 1000 OF TOTAL DEATHS OF WHICH THE MONTHS ARE KNOWN.

Months.	MASSACHUSETTS.						NEW JERSEY.					
	Deaths.			Per 1000 of deaths of known months.			Deaths.			Per 1000 of deaths of known months.		
	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.	Total.	Male.	Female.
June, 1879	1,817	881	936	72.5	71.2	73.7	1,262	637	625	68.3	66.8	69.8
July, 1879.....	2,221	1,145	1,076	88.6	92.6	84.7	1,975	1,030	945	106.9	108.1	105.5
August, 1879.....	2,379	1,233	1,146	94.9	99.7	90.3	1,855	967	888	100.4	101.5	99.2
September, 1879	1,953	959	994	77.9	77.5	78.3	1,468	735	733	79.4	77.1	81.8
October, 1879	1,928	913	1,015	76.9	73.8	79.9	1,364	721	643	73.8	75.7	71.8
November, 1879.....	1,702	883	879	70.3	71.4	69.2	1,347	658	689	72.9	69.0	76.9
December, 1879	1,917	907	1,010	76.5	73.3	79.5	1,380	741	645	75.0	77.8	72.0
January, 1880.....	2,085	1,009	1,076	83.2	81.6	84.7	1,502	769	733	81.3	80.7	81.8
February, 1880.....	2,052	1,020	1,032	81.9	82.5	81.3	1,492	774	718	80.7	81.2	80.2
March, 1880.....	2,385	1,128	1,257	95.2	91.2	99.0	1,576	819	757	85.3	85.9	84.5
April, 1880.....	2,309	1,153	1,156	92.1	93.2	91.1	1,573	764	809	85.1	80.2	90.3
May, 1880.....	2,242	1,130	1,112	89.5	91.4	87.6	1,672	908	764	90.5	95.3	85.3
Month unknown.....	.....	.....	.....	.....	.....	.....	2	1	1	.....	.....	.....
Aggregate.....	25,050	12,361	12,689	.....	.....	.....	18,474	9,524	8,950	.....	.....	.....

TABLE 24.—SHOWING FOR MASSACHUSETTS, EXCLUSIVE OF BOSTON, THE DEATHS BY MONTHS AND PERIODS OF AGES, AND THE PROPORTION FOR EACH MONTH, OF DEATHS AT CERTAIN PERIODS OF AGES TO TOTAL DEATHS OF EACH MONTH.

Months.	Total.	Under 5.	5 to 20.	20 to 60.	60 and over.	Age unknown.	PER 1000.			
							Under 5.	5 to 20.	20 to 60.	60 and over.
January	2,085	641	201	663	580	.....	307.43	96.40	317.98	278.17
February	2,052	624	194	647	587	.....	304.09	94.54	315.30	286.06
March	2,385	702	213	769	700	1	294.80	89.35	297.69	318.05
April	2,369	641	231	714	723	.....	277.00	100.04	309.22	313.12
May	2,242	664	216	703	659	.....	296.16	96.34	313.55	293.93
June	1,817	510	204	595	507	1	280.68	112.32	327.46	279.03
July	2,221	912	200	689	469	1	410.62	90.04	287.70	211.16
August	2,379	1,030	196	611	541	1	432.95	82.38	256.83	227.40
September	1,953	680	169	621	473	1	352.27	86.53	317.97	242.19
October	1,928	626	212	600	488	2	324.68	110.47	311.20	253.11
November	1,762	544	185	538	494	1	308.74	104.99	305.33	280.36
December	1,917	553	226	596	540	2	288.47	117.89	310.90	281.69

TABLE 25.—SHOWING FOR NEW JERSEY THE DEATHS BY MONTHS AND PERIODS OF AGES AND THE PROPORTION FOR EACH MONTH OF DEATHS AT CERTAIN PERIODS OF AGES TO TOTAL DEATHS OF EACH MONTH.

Months.	Total.	Under 5.	5 to 20.	20 to 60.	60 and over.	Age unknown.	IN 1000.			
							Under 5.	5 to 20.	20 to 60.	60 and over.
January	1,502	457	151	520	353	12	304.26	100.53	352.19	235.01
February	1,492	520	136	475	339	13	354.55	91.15	318.36	226.91
March	1,570	545	142	490	388	11	345.81	90.10	310.01	246.19
April	1,573	541	154	521	345	12	343.92	97.90	331.21	219.32
May	1,672	579	176	540	364	13	346.20	105.26	322.96	217.70
June	1,262	479	100	304	251	8	379.55	126.78	288.43	198.89
July	1,975	1,016	146	479	316	18	514.43	73.92	242.53	160.00
August	1,855	897	147	470	325	10	483.55	79.24	250.00	175.20
September	1,468	540	150	401	307	10	367.84	102.17	314.03	209.12
October	1,364	519	139	430	267	9	380.40	101.90	315.24	195.74
November	1,347	443	159	450	289	6	328.87	118.04	334.07	214.55
December	1,386	482	147	426	324	7	347.76	106.06	307.35	233.76

From these tables it appears that in Massachusetts the greatest proportion of deaths occurs in the months of March, August, April, May, and July, in the order named; and that in New Jersey the greatest proportion of deaths occurs in July and August, there being a second maximum for March and May. The high mortality in the summer months is due mainly to deaths occurring among infants from diarrhœal affections. In Massachusetts the months of greatest mortality for children under 5 years of age are in the order named, August, July, September, and November, while for adults from 20 to 60 years of age the maximum mortality occurs in June, and next to this in January; and for persons of 60 years of age and over, the months of greatest mortality are March, April, and February. In New Jersey the months of maximum mortality for children under 5 years of age are July, August, and June; for persons of 20 to 60 years of age they are January, November, and April; and for those of 60 years of age and over they are March, December, January, and February. Excessive heat is most fatal to infants, excessive cold to the aged.

The question as to the influence which the meteorological conditions of a given period have exerted in a given locality is often one of considerable importance in attempts to estimate the comparative healthfulness of different localities or of the same locality at different periods. For example, the death rate of a city may be 2 or 3 per 1000 less this year than it was last year, owing to the fact that this summer was cooler and had fewer sudden changes of temperature than the preceding one, and yet the city may have been, with the exception of the infantile population, more unhealthy this year than it was last. It is for this reason that the distinction of age to a certain extent should be given in tabulations of deaths by months or seasons, although it is not usual to do so, and the distinctions of age given in Table XIV, Part II, are the first of the kind made use of in census work.

The data given in Table XXII, Part II, showing for each of the 31 cities having registration of deaths the number of deaths for each month, with distinction of age and sex, will be found especially valuable for the study of influence of season on gross-mortality rates.

APPENDIX.

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APPENDIX.

List of counties composing each state group, in alphabetical order.

ALABAMA.

GROUP 1.

Baldwin. Mobile.

GROUP 2.

Blount.	Colbert.	Franklin.	Lawrence.	Marshall.	Shelby.
Calhoun.	Cullman.	Jackson.	Limestone.	Morgan.	Walker.
Cherokee.	De Kalb.	Jefferson.	Madison.	Saint Clair.	Winston.
Cleburne.	Etowah.	Lauderdale.			

GROUP 3.

Autauga.	Clarke.	Dale.	Hale.	Marion.	Russell.
Barbour.	Clay.	Dallas.	Henry.	Monroe.	Sumter.
Bibb.	Coffee.	Elmore.	Lamar.	Montgomery.	Talladega.
Bullock.	Conecuh.	Escambia.	Lee.	Perry.	Tallapoosa.
Butler.	Coosa.	Fayette.	Lowndes.	Pickens.	Tuscaloosa.
Chambers.	Covington.	Geneva.	Macon.	Pike.	Washington.
Chilton.	Crenshaw.	Greene.	Marengo.	Randolph.	Wilcox.
Choctaw.					

ARIZONA.

The territory forms one group.

ARKANSAS.

GROUP 1.

Chicot.	Crittenden.	Desha.	Lee.	Mississippi.	Poinsett.
Craighead.	Cross.	Jefferson.	Lincoln.	Phillips.	Saint Francis.

GROUP 2.

Arkansas.	Conway.	Hempstead.	Logan.	Perry.	Sebastian.
Ashley.	Crawford.	Hot Spring.	Lonoke.	Pike.	Sevier.
Baxter.	Dallas.	Howard.	Madison.	Polk.	Sharp.
Benton.	Dorsey.	Independence.	Marion.	Pope.	Stone.
Boone.	Drew.	Izard.	Miller.	Prairie.	Union.
Bradley.	Faulkner.	Jackson.	Monroe.	Pulaski.	Van Buren.
Calhoun.	Franklin.	Johnson.	Montgomery.	Randolph.	Washington.
Carroll.	Fulton.	La Fayette.	Nevada.	Saline.	White.
Clark.	Garland.	Lawrence.	Newton.	Scott.	Woodruff.
Clay.	Grant.	Little River.	Ouachita.	Searcy.	Yell.
Columbia.	Greene.				

CALIFORNIA.

GROUP 1.

Alpine.	Fresno.	Merced.	Placer.	Shasta.	Tehama.
Amador.	Inyo.	Modoc.	Plumas.	Sierra.	Tulare.
Butte.	Kern.	Mono.	Sacramento.	Siskiyou.	Tuolumne.
Calaveras.	Lake.	Napa.	San Bernardino.	Stanislaus.	Yolo.
Colusa.	Lassen.	Nevada.	San Joaquin.	Sutter.	Yuba.
El Dorado.	Mariposa.				

List of counties composing each state group, in alphabetical order—Continued.

CALIFORNIA—Continued.

GROUP 2.

Alameda.	Los Angeles.	San Benito.	San Luis Obispo.	Santa Clara.	Sonoma.
Contra Costa.	Marin.	San Diego.	San Mateo.	Santa Cruz.	Trinity.
Del Norte.	Mendocino.	San Francisco.	Santa Barbara.	Solano.	Ventura.
Humboldt.	Monterey.				

COLORADO.

GROUP 1.

Arapahoe.	Douglas.	El Paso.	Las Animas.	Pueblo.	Weld.
Bent.	Elbert.				

GROUP 2.

Boulder.	Costilla.	Grand.	Jefferson.	Ouray.	Saguache.
Chaffee.	Custer.	Gunnison.	Lake.	Park.	San Juan.
Clear Creek.	Fremont.	Hinsdale.	La Plata.	Rio Grande.	Summit.
Conejos.	Gilpin.	Huerfano.	Larimer.	Routt.	

CONNECTICUT.

GROUP 1.

Fairfield.	Middlesex.	New Haven.	New London.

GROUP 2.

Hartford.	Litchfield.	Tolland.	Windham.

DAKOTA.

GROUP 1.

Aurora.	Clark.	Fort Sisseton Indian reservation.	Hanson.	McHenry.	Renville.
Barnes.	Codington.	Foster.	Hutchinson.	McPherson.	Richland.
Beadle.	Davison.	French.	Kidder.	Miner.	Rolette.
Bottineau.	Day.	Gingras.	Kingsbury.	Minnehaha.	Sheridan.
Bramble.	De Smet.	Grand Forks.	Lake.	Moody.	Spink.
Brookings.	Deuel.	Grant.	La Moure.	Pembina.	Stutsman.
Brown.	Douglas.	Hamlin.	Lincoln.	Ramsey.	Traill.
Cass.	Edmunds.	Hand.	Logan.	Ransom.	Turner.
Cavileer.	Faulk.		McCook.		

GROUP 2.

Bonhomme.	Campbell.	Howard.	Potter.	Stevens.	Wallette.
Boreman.	Charles Mix.	Hughes.	Presho.	Sully.	Walworth.
Brulé.	Clay.	Lyman.	Rusk.	Todd.	Williams.
Buffalo.	Edmunds.	Mercer.	Stanley.	Union.	Yankton.
Burleigh.	Gregory.	Mountraille.			

GROUP 3.

Billings.	Delano.	Lugenbeel.	Morton.	Shannon.	White River.
Cheyenne.	Forsyth.	Mandan.	Pennington.	Stark.	Ziebach.
Custer.	Lawrence.	Meyer.	Pratt.	Tripp.	

DELAWARE.

The state forms one group.

DISTRICT OF COLUMBIA.

The district forms one group.

FLORIDA.

The state forms one group.

List of counties composing each state group, in alphabetical order—Continued.

GEORGIA.

GROUP 1.

Appling.	Camden.	Clinch.	Glynn.	McIntosh.	Tattnall.
Bryan.	Charlton.	Echols.	Liberty.	Pierce.	Ware.
Bulloch.	Chatham.	Effingham.	Lowndes.	Screven.	Wayne.

GROUP 2.

Banks.	Dade.	Franklin.	Hall.	Milton.	Towns.
Bartow.	Dawson.	Fulton.	Haralson.	Murray.	Union.
Catoosa.	De Kalb.	Gilmer.	Hart.	Paulding.	Walker.
Chattooga.	Fannin.	Gordon.	Jackson.	Pickens.	White.
Cherokee.	Floyd.	Gwinnett.	Lumpkin.	Polk.	Whitfield.
Cobb.	Forsyth.	Habersham.	Madison.	Rabun.	

GROUP 3.

Baker.	Coffee.	Glascock.	Lincoln.	Pike.	Telfair.
Baldwin.	Colquitt.	Greene.	McDuffy.	Pulaski.	Terrell.
Berrien.	Columbia.	Hancock.	Macon.	Putnam.	Thomas.
Bibb.	Coweta.	Harris.	Marion.	Quitman.	Troup.
Brooks.	Crawford.	Heard.	Meriwether.	Randolph.	Twiggs.
Burke.	Decatur.	Henry.	Miller.	Richmond.	Upson.
Butts.	Dodge.	Houston.	Mitchell.	Rockdale.	Walton.
Calhoun.	Dooly.	Irwin.	Monroe.	Schley.	Warren.
Campbell.	Dougherty.	Jasper.	Montgomery.	Spalding.	Washington.
Carroll.	Douglas.	Jefferson.	Morgan.	Stewart.	Webster.
Chattahoochee.	Early.	Johnson.	Muscogee.	Sumter.	Wilcox.
Clarke.	Elbert.	Jones.	Newton.	Talbot.	Wilkes.
Clay.	Emanuel.	Laurens.	Oconee.	Taliaferro.	Wilkinson.
Clayton.	Fayette.	Lee.	Oglethorpe.	Taylor.	Worth.

IDAHO.

The territory forms one group.

ILLINOIS.

GROUP 1.

Cook.	Lake.

GROUP 2.

Adams.	Gallatin.	Jackson.	Madison.	Pike.	Rock Island.
Alexander.	Hancock.	Jersey.	Massac.	Pope.	Saint Clair.
Calhoun.	Hardin.	Jo Daviess.	Mercer.	Pulaski.	Union.
Carroll.	Henderson.	Johnson.	Monroe.	Randolph.	Whiteside.

GROUP 3.

Bond.	De Kalb.	Hamilton.	Logan.	Ogle.	Stephenson.
Boone.	De Witt.	Henry.	McDonough.	Peoria.	Tazewell.
Brown.	Douglas.	Iroquois.	McHenry.	Perry.	Vermilion.
Bureau.	Du Page.	Jasper.	McLean.	Piatt.	Wabash.
Cass.	Edgar.	Jefferson.	Macon.	Putnam.	Warren.
Champaign.	Edwards.	Kane.	Macoupin.	Richland.	Washington.
Christian.	Effingham.	Kankakee.	Marion.	Saline.	Wayne.
Clark.	Fayette.	Kendall.	Marshall.	Sangamon.	White.
Clay.	Ford.	Knox.	Mason.	Schuyler.	Will.
Clinton.	Franklin.	La Salle.	Menard.	Scott.	Williamson.
Coles.	Fulton.	Lawrence.	Montgomery.	Shelby.	Winnebago.
Crawford.	Greene.	Lee.	Morgan.	Stark.	Woodford.
Cumberland.	Grundy.	Livingston.	Moultrie.		

INDIANA.

GROUP 1.

Lake.	La Porte.	Porter.

List of counties composing each state group, in alphabetical order—Continued.

INDIANA—Continued.

GROUP 2.

Clark.	Floyd.	Jennings.	Pike.	Scott.	Vanderburgh.
Crawford.	Gibson.	Ohio.	Posey.	Spencer.	Warrick.
Dearborn.	Harrison.	Orange.	Ripley.	Switzerland.	Washington.
Dubois.	Jefferson.	Perry.			

GROUP 3.

Adams.	Decatur.	Hendricks.	Lawrence.	Owen.	Tippecanoe.
Allen.	De Kalb.	Henry.	Madison.	Parke.	Tipton.
Bartholomew.	Delaware.	Howard.	Marion.	Pulaski.	Union.
Benton.	Elkhart.	Huntington.	Marshall.	Putnam.	Vermillion.
Blackford.	Fayette.	Jackson.	Martin.	Randolph.	Vigo.
Boone.	Fountain.	Jasper.	Miami.	Rush.	Wabash.
Brown.	Franklin.	Jay.	Monroe.	Saint Joseph.	Warren.
Carroll.	Fulton.	Johnson.	Montgomery.	Shelby.	Wayne.
Cass.	Grant.	Knox.	Morgan.	Starke.	Wells.
Clay.	Greene.	Kosciusko.	Newton.	Steuben.	White.
Clinton.	Hamilton.	Lagrange.	Noble.	Sullivan.	Whitley.
Daviess.	Hancock.				

IOWA.

GROUP 1.

Allamakee.	Clinton.	Dubuque.	Lee.	Muscatine.	Scott.
Clayton.	Des Moines.	Jackson.	Louisa.		

GROUP 2.

Adair.	Cedar.	Floyd.	Jasper.	Monroe.	Tama.
Adams.	Cerro Gordo.	Franklin.	Jefferson.	Montgomery.	Taylor.
Appanoose.	Cherokee.	Greene.	Johnson.	O'Brien.	Union.
Audubon.	Chickasaw.	Grundy.	Jones.	Osceola.	Van Buren.
Benton.	Clarke.	Guthrie.	Keokuk.	Page.	Wapello.
Black Hawk.	Clay.	Hamilton.	Kossuth.	Palo Alto.	Warren.
Boone.	Crawford.	Hancock.	Linn.	Pocahontas.	Washington.
Bremer.	Dallas.	Hardin.	Lucas.	Polk.	Wayne.
Buchanan.	Davis.	Henry.	Madison.	Poweshiek.	Webster.
Buena Vista.	Decatur.	Howard.	Mahaska.	Ringgold.	Winnebago.
Butler.	Delaware.	Humboldt.	Marion.	Sac.	Winneshiek.
Calhoun.	Dickinson.	Ida.	Marshall.	Shelby.	Worth.
Carroll.	Emmet.	Iowa.	Mitchell.	Story.	Wright.
Cass.	Fayette.				

GROUP 3.

Fremont.	Lyon.	Monona.	Pottawattamie.	Sioux.	Woodbury.
Harrison.	Mills.	Plymouth.			

KANSAS.

GROUP 1.

Allen.	Cloud.	Franklin.	Leavenworth.	Morris.	Saline.
Anderson.	Coffey.	Greenwood.	Lincoln.	Nemaha.	Sedgwick.
Atchison.	Cowley.	Harper.	Linn.	Neosho.	Shawnee.
Bourbon.	Crawford.	Harvey.	Lyon.	Osage.	Sumner.
Brown.	Davis.	Jackson.	McPherson.	Ottawa.	Wabaunsee.
Butler.	Dickinson.	Jefferson.	Marion.	Pottawatomie.	Washington.
Chase.	Doniphan.	Jewell.	Marshall.	Reno.	Wilson.
Chautauqua.	Douglas.	Johnson.	Miami.	Republic.	Woodson.
Cherokee.	Elk.	Kingman.	Mitchell.	Rice.	Wyandotte.
Clay.	Ellsworth.	Labette.	Montgomery.	Riley.	

GROUP 2.

Arapahoe.	Edwards.	Hamilton.	Osborne.	Russell.	Stafford.
Barbour.	Ellis.	Hodgeman.	Pawnee.	Scott.	Stanton.
Barton.	Foote.	Kansas.	Phillips.	Seward.	Stevens.
Buffalo.	Ford.	Kearney.	Pratt.	Sequoyah.	Thomas.
Cheyenne.	Gove.	Lane.	Rawlins.	Sheridan.	Trego.
Clark.	Graham.	Meade.	Rooks.	Sherman.	Wallace.
Comanche.	Grant.	Ness.	Rush.	Smith.	Wichita.
Decatur.	Greeley.	Norton.			

List of counties composing each state group, in alphabetical order—Continued.

KENTUCKY.

GROUP 1.

Bell.	Elliott.	Johnson.	Leslie.	Morgan.	Pulaski.
Boyd.	Estill.	Knox.	Letcher.	Owsley.	Rockcastle.
Breathitt.	Floyd.	Laurel.	Magoffin.	Perry.	Wayne.
Carter.	Harlan.	Lawrence.	Martin.	Pike.	Whitley.
Clay.	Jackson.	Lee.	Menifee.	Powell.	Wolfe.
Clinton.					

GROUP 2.

Boone.	Carroll.	Greenup.	Kenton.	Mason.	Oldham.
Bracken.	Crittenden.	Hancock.	Lewis.	Meade.	Trimble.
Breckinridge.	Daviess.	Henderson.	Livingston.	McCracken.	Union.
Campbell.	Gallatin.	Jefferson.			

GROUP 3.

Ballard.	Fulton.	Hickman.

GROUP 4.

Adair.	Casey.	Grayson.	Logan.	Muhlenburgh.	Shelby.
Allen.	Christian.	Green.	Lyon.	Nelson.	Simpson.
Anderson.	Clark.	Hardin.	McLean.	Nicholas.	Spencer.
Barren.	Cumberland.	Harrison.	Madison.	Ohio.	Taylor.
Bath.	Edmonson.	Hart.	Marion.	Owen.	Todd.
Bourbon.	Fayette.	Henry.	Marshall.	Pendleton.	Trigg.
Boyle.	Fleming.	Hopkins.	Mercer.	Robertson.	Warren.
Bullitt.	Franklin.	Jessamine.	Metcalfe.	Rowan.	Washington.
Butler.	Garrard.	La Rue.	Monroe.	Russell.	Webster.
Caldwell.	Grant.	Lincoln.	Montgomery.	Scott.	Woodford.
Calloway.	Graves.				

LOUISIANA.

GROUP 1.

Ascension.	Iberia.	Livingston.	Saint Helena.	Saint Martin.	Terrebonne.
Assumption.	Iberville.	Orleans.	Saint James.	Saint Mary.	Vermillion.
Calcasieu.	Jefferson.	Plaquemines.	Saint John Baptist.	Saint Tammany.	Washington.
Cameron.	La Fayette.	Saint Bernard.	Saint Landry.	Tangipahoa.	West Baton Rouge.
East Baton Rouge.	Lafourche.	Saint Charles.			

GROUP 2.

Avoyelles.	East Carroll.	Madison.	Tensas.	West Carroll.	West Feliciana.
Concordia.	East Feliciana.	Point Coupée.			

GROUP 3.

Bienville.	Catahoula.	Grant.	Natchitoches.	Richland.	Vernon.
Bossier.	Claiborne.	Jackson.	Ouachita.	Sabine.	Webster.
Caddo.	De Soto.	Lincoln.	Rapides.	Union.	Winn.
Caldwell.	Franklin.	Morehouse.	Red River.		

MAINE.

GROUP 1.

Androscoggin.	Hancock.	Knox.	Sagadahoc.	Washington.	York.
Cumberland.	Kennebec.	Lincoln.	Waldo.		

GROUP 2.

Aroostook.	Franklin.	Oxford.	Penobscot.	Piscataquis.	Somerset.

MARYLAND.

GROUP 1.

Anne Arundel.	Carroll.	Dorchester.	Kent.	Queen Anne.	Talbot.
Baltimore.	Cecil.	Harford.	Montgomery.	Saint Mary's.	Wicomico.
Calvert.	Charles.	Howard.	Prince George.	Somerset.	Worcester.
Caroline.					

List of counties composing each state group, in alphabetical order—Continued.

MARYLAND—Continued.

GROUP 2.

Allegany. Frederick. Garrett. Washington.

MASSACHUSETTS.

GROUP 1.

Barnstable. Bristol. Dukes. Essex. Middlesex. Nantucket. Norfolk. Plymouth. Suffolk.

GROUP 2.

Berkshire. Franklin. Hampden. Hampshire. Worcester.

MICHIGAN.

GROUP 1.

Alcona. Allegan. Alpena. Antrim. Baraga. Bay. Benzie. Berrien. Charlevoix. Cheboygan. Chippewa. Delta. Emmet. Grand Traverse. Houghton. Huron. Iosco. Isle Royale. Keweenaw. Leelanaw. Mackinac. Macomb. Manistee. Manitou. Marquette. Mason. Menominee. Monroe. Muskegon. Oceana. Ontonagon. Ottawa. Presque Isle. Saginaw. Saint Clair. Sanilac. Schoolcraft. Tuscola. Van Buren. Wayne.

GROUP 2.

Barry. Branch. Calhoun. Cass. Clare. Clinton. Crawford. Eaton. Genesee. Gladwin. Gratiot. Hillsdale. Ingham. Ionia. Isabella. Jackson. Kalamazoo. Kalkaska. Kent. Lake. Lapeer. Lenawee. Livingston. Macosta. Midland. Missaukee. Montcalm. Montmorency. Newaygo. Oakland. Ogemaw. Osceola. Oscoda. Otsego. Roscommon. Saint Joseph. Shiawassee. Washtenaw. Wexford.

MINNESOTA.

GROUP 1.

Anoka. Benton. Crow Wing. Dakota. Goodhue. Hennepin. Houston. Morrison. Ramsey. Sherburne. Stearns. Wabasha. Washington. Winona. Wright.

GROUP 2.

Big Stone. Blue Earth. Brown. Carver. Chippewa. Chisago. Cottonwood. Dodge. Douglas. Faribault. Fillmore. Freeborn. Grant. Isanti. Jackson. Kanabec. Kandiyohi. Lac-qui-parle. Le Sueur. Lincoln. Lyon. McLeod. Martin. Meeker. Mille Lacs. Mower. Murray. Nicollet. Nobles. Olmstead. Pipe Stone. Pope. Redwood. Renville. Rice. Rock. Scott. Sibley. Steele. Stevens. Swift. Todd. Traverse. Waseca. Watonwan. Yellow Medicine.

GROUP 3.

Aitkin. Becker. Beltrami. Carlton. Cass. Clay. Cook. Itasca. Kittson. Lake. Marshall. Otter Tail. Pine. Polk. Saint Louis. Wadena. Wilkin.

MISSISSIPPI.

GROUP 1.

Hancock. Harrison. Jackson.

List of counties composing each state group, in alphabetical order—Continued.

MISSISSIPPI—Continued.

GROUP 2.

Alcorn.	Clay.	Jasper.	Lowndes.	Oktibbeha.	Smith.
Amite.	Copiah.	Jones.	Madison.	Panola.	Sumner.
Attala.	Covington.	Kemper.	Marshall.	Perry.	Tate.
Benton.	Franklin.	La Fayette.	Marion.	Pike.	Tippah.
Calhoun.	Greene.	Lauderdale.	Monroe.	Pontotoc.	Tishomingo.
Carroll.	Grenada.	Lawrence.	Montgomery.	Prentiss.	Union.
Chickasaw.	Hinds.	Leake.	Neshoba.	Rankin.	Wayne.
Choctaw.	Holmes.	Lee.	Newton.	Scott.	Winston.
Clarke.	Itawamba.	Lincoln.	Noxubee.	Simpson.	Yalobusha.

GROUP 3.

Adams.	Coahoma.	Jefferson.	Sharkey.	Tunica.	Wilkinson.
Bolivar.	De Soto.	Le Flore.	Sunflower.	Warren.	Yazoo.
Claiborne.	Issaquena.	Quitman.	Tallahatchie.	Washington.	

MISSOURI.

GROUP 1.

Bollinger.	Jefferson.	Mississippi.	Perry.	Saint Charles.	Saint Louis (city).
Cape Girardeau.	Lewis.	New Madrid.	Pike.	Sainte Genevieve.	Scott.
Clark.	Lincoln.	Pemiscot.	Ralls.	Saint Louis.	Stoddard.
Dunklin.	Marion.				

GROUP 2.

Barry.	Cedar.	Henry.	McDonald.	Pettis.	Stone.
Barton.	Christian.	Hickory.	Madison.	Phelps.	Taney.
Bates.	Crawford.	Howell.	Maries.	Polk.	Texas.
Benton.	Dade.	Iron.	Miller.	Pulaski.	Vernon.
Butler.	Dallas.	Jasper.	Morgan.	Reynolds.	Washington.
Camden.	Dent.	Johnson.	Newton.	Ripley.	Wayne.
Carter.	Douglas.	Laclede.	Oregon.	Saint Clair.	Webster.
Cass.	Greene.	Lawrence.	Ozark.	Shannon.	Wright.

GROUP 3.

Adair.	Daviess.	Harrison.	Macon.	Putnam.	Shelby.
Audrain.	De Kalb.	Knox.	Mercer.	Randolph.	Sullivan.
Caldwell.	Gentry.	Linn.	Monroe.	Schuyler.	Worth.
Clinton.	Grundy.	Livingston.	Nodaway.	Scotland.	

GROUP 4.

Andrew.	Callaway.	Cole.	Holt.	Moniteau.	Ray.
Atchison.	Carroll.	Cooper.	Howard.	Montgomery.	Saint François.
Boone.	Chariton.	Franklin.	Jackson.	Osage.	Saline.
Buchanan.	Clay.	Gasconade.	La Fayette.	Platte.	Warren.

MONTANA.

GROUP 1.

Custer.	Dawson.

GROUP 2.

Beaver Head.	Deer Dodge.	Jefferson.	Madison.	Meagher.	Missoula.
Choteau.	Gallatin.	Lewis and Clarke.			

NEBRASKA.

GROUP 1.

Adams.	Cuming.	Greeley.	Kearney.	Phelps.	Sherman.
Antelope.	Dodge.	Hall.	Lancaster.	Pierce.	Stanton.
Blackbird.	Fillmore.	Hamilton.	Madison.	Platte.	Thayer.
Boone.	Franklin.	Harlan.	Merrick.	Polk.	Valley.
Buffalo.	Furnas.	Howard.	Nance.	Saline.	Wayne.
Butler.	Gage.	Jefferson.	Nuckolls.	Saunders.	Webster.
Clay.	Gosper.	Johnson.	Pawnee.	Seward.	York.
Colfax.					

List of counties composing each state group, in alphabetical order—Continued.

NEBRASKA—Continued.

GROUP 2.

Burt.
Cass.
Cedar.
Dakota.
Dixon.
Douglas.
Knox.
Nemaha.
Otoe.
Richardson.
Sarpy.
Washington.

GROUP 3.

Chase.
Cheyenne.
Custer.
Dawson.
Dundy.
Frontier.
Hayes.
Hitchcock.
Holt.
Keith.
Lincoln.
Red Willow.
Sioux.
Wheeler.
Unorganized territory.

NEVADA.

The state forms one group.

NEW HAMPSHIRE.

GROUP 1.

Belknap.
Hillsborough.
Merrimack.
Rockingham.
Strafford.

GROUP 2.

Carroll.
Cheshire.
Coos.
Grafton.
Sullivan.

NEW JERSEY.

GROUP 1.

Atlantic.
Bergen.
Burlington.
Camden.
Cape May.
Cumberland.
Essex.
Gloucester.
Hudson.
Middlesex.
Monmouth.
Ocean.
Salem.
Union.

GROUP 2.

Hunterdon.
Mercer.
Morris.
Passaic.
Somerset.
Sussex.
Warren.

NEW MEXICO.

GROUP 1.

Colfax.
Lincoln.
Mora.
San Miguel.

GROUP 2.

Bernalillo.
Doña Ana.
Grant.
Rio Ariba.
Santa Ana.
Santa Fé.
Socorro.
Taos.
Valencia.

NEW YORK.

GROUP 1.

Kings.
New York.
Queens.
Richmond.
Rockland.
Suffolk.
Westchester.

GROUP 2.

Clinton.
Essex.
Franklin.
Hamilton.
Herkimer.
Saint Lawrence.
Warren.

GROUP 3.

Delaware.
Greene.
Orange.
Sullivan.
Ulster.

GROUP 4.

Chautauqua.
Erie.
Genesee.
Jefferson.
Monroe.
Niagara.
Orleans.
Oswego.
Wayne.

List of counties composing each state group, in alphabetical order—Continued.

NEW YORK—Continued.

GROUP 5.

Albany.	Chenango.	Livingston.	Ontario.	Schenectady.	Tioga.
Allegany.	Columbia.	Madison.	Otsego.	Schoharie.	Tompkins.
Broome.	Cortland.	Montgomery.	Putnam.	Schuyler.	Washington.
Cattaraugus.	Dutchess.	Oneida.	Rensselaer.	Seneca.	Wyoming.
Cayuga.	Fulton.	Onondaga.	Saratoga.	Steuben.	Yates.
Chemung.	Lewis.				

NORTH CAROLINA.

GROUP 1.

Beaufort.	Chowan.	Duplin.	Jones.	Pamlico.	Robeson.
Bertie.	Columbus.	Gates.	Lenoir.	Pasquotank.	Sampson.
Bladen.	Craven.	Greene.	Martin.	Pender.	Tyrrell.
Brunswick.	Cumberland.	Hertford.	New Hanover.	Perquimans.	Washington.
Camden.	Currituck.	Hyde.	Onslow.	Pitt.	Wayne.
Carteret.	Dare.				

GROUP 2.

Alamance.	Davidson.	Guilford.	Mecklenburg.	Person.	Stokes.
Anson.	Davie.	Halifax.	Montgomery.	Randolph.	Union.
Cabarrus.	Edgecombe.	Harnett.	Moore.	Richmond.	Warren.
Caswell,	Forsyth.	Iredell.	Nash.	Rockingham.	Wake.
Catawba.	Franklin.	Johnston.	Northampton.	Rowan.	Wilson.
Chatham.	Gaston.	Lincoln.	Orange.	Stanley	Yadkin.
Cleaveland.	Granville.				

GROUP 3.

Alexander.	Burke.	Graham.	McDowell.	Polk.	Transylvania.
Alleghany.	Caldwell.	Haywood.	Macon.	Rutherford.	Watauga.
Ashe.	Cherokee.	Henderson.	Madison.	Surry.	Wilkes.
Buncombe.	Clay.	Jackson.	Mitchell.	Swain.	Yancey.

OHIO.

GROUP 1.

Ashtabula.	Erie.	Lake.	Lucas.	Sandusky.	Wood.
Cuyahoga.	Geauga.	Lorain.	Ottawa.		

GROUP 2.

Adams.	Clinton.	Hamilton.	Lawrence.	Noble.	Ross.
Athens.	Fairfield.	Highland.	Meigs.	Perry.	Scioto.
Belmont.	Fayette.	Hocking.	Monroe.	Pickaway.	Vinton.
Brown.	Gallia.	Jackson.	Montgomery.	Pike.	Warren.
Butler.	Greene.	Jefferson.	Morgan.	Preble.	Washington.
Clermont.					

GROUP 3.

Allen.	Crawford.	Hardin.	Madison.	Paulding.	Trumbull.
Ashland.	Darke.	Harrison.	Mahoning.	Portage.	Tuscarawas.
Auglaize.	Defiance.	Henry.	Marion.	Putnam.	Union.
Carroll.	Delaware.	Holmes.	Medina.	Richland.	Van Wert.
Champaign.	Franklin.	Huron.	Mercer.	Seneca.	Wayne.
Clarke.	Fulton.	Knox.	Miami.	Shelby.	Williams.
Columbiana.	Guernsey.	Licking.	Morrow.	Stark.	Wyandot.
Coshockton.	Hancock.	Logan.	Muskingum.	Summit.	

OREGON.

GROUP 1.

Baker.	Grant.	Lake.	Umatilla.	Union.	Wasco.

List of counties composing each state group, in alphabetical order—Continued.

OREGON—Continued.

GROUP 2.

Benton.	Columbia.	Douglas.	Lane.	Multnomah.	Washington.
Clackamas.	Coos.	Jackson.	Linn.	Polk.	Yam Hill.
Clatsop.	Curry.	Josephine.	Marion.	Tillamook.	

PENNSYLVANIA.

GROUP 1.

Adams.	Centre.	Franklin.	Luzerne.	Perry.	Susquehanna.
Bedford.	Clearfield.	Fulton.	Lycoming.	Pike.	Tioga.
Blair.	Clinton.	Huntingdon.	Mifflin.	Schuylkill.	Union.
Bradford.	Columbia.	Indiana.	Monroe.	Somerset.	Wayne.
Cambria.	Cumberland.	Juniata.	Montour.	Snyder.	Westmoreland.
Cameron.	Dauphin.	Lackawanna.	Northumberland.	Sullivan.	Wyoming.
Carbon.	Fayette.	Lebanon.			

GROUP 2.

Allegheny.	Butler.	Elk.	Lancaster.	Montgomery.	Venango.
Armstrong.	Chester.	Erie.	Lawrence.	Northampton.	Warren.
Beaver.	Clarion.	Forest.	Lehigh.	Philadelphia.	Washington.
Berks.	Crawford.	Greene.	McKean.	Potter.	York.
Bucks.	Delaware.	Jefferson.	Mercer.		

RHODE ISLAND.

The state forms one group.

SOUTH CAROLINA.

GROUP 1.

Beaufort.	Clarendon.	Georgetown.	Horry.	Marion.	Williamsburgh.
Charleston.	Colleton.	Hampton.			

GROUP 2.

Oconee.	Pickens.

GROUP 3.

Abbeville.	Chester.	Fairfield.	Laurens.	Orangeburgh.	Sumter.
Aiken.	Chesterfield.	Greenville.	Lexington.	Richland.	Union.
Anderson.	Darlington.	Kershaw.	Marlborough.	Spartanburgh.	York.
Barnwell.	Edgefield.	Lancaster.	Newberry.		

TENNESSEE.

GROUP 1.

Anderson.	Coffee.	Hamblen.	Loudon.	Polk.	Sullivan.
Bledsoe.	Cumberland.	Hamilton.	McMinn.	Putnam.	Unicoi.
Blount.	De Kalb.	Hancock.	Marion.	Rhea.	Union.
Bradley.	Fentress.	Hawkins.	Meigs.	Roane.	Van Buren.
Campbell.	Franklin.	James.	Monroe.	Scott.	Warren.
Carter.	Grainger.	Jefferson.	Moore.	Sequatchie.	Washington.
Claiborne.	Greene.	Johnson.	Morgan.	Sevier.	White.
Cocke.	Grundy.	Knox.	Overton.		

GROUP 2.

Benton.	Decatur.	Gibson.	Haywood.	Henry.	Madison.
Carroll.	Fayette.	Hardeman.	Henderson.	McNairy.	Weakley.
Crockett.					

GROUP 3.

Dyer.	Lake.	Lauderdale.	Obion.	Shelby.	Tipton.

List of counties composing each state group, in alphabetical order—Continued.

TENNESSEE—Continued.

GROUP 4.

Bedford.
Cannon.
Cheatham.
Clay.
Davidson.
Dickson.
Giles.
Hardin.
Hickman.
Houston.
Humphreys.
Jackson.
Lawrence.
Lewis.
Lincoln.
Macon.
Marshall.
Maury.
Montgomery.
Perry.
Robertson.
Rutherford.
Smith.
Stewart.
Sumner.
Wayne.
Williamson.
Wilson.
Trousdale.

TEXAS.

GROUP 1.

Aransas.
Bee.
Brazoria.
Calhoun.
Cameron.
Chambers.
Fort Bend.
Galveston.
Goliad.
Hardin.
Harris.
Hidalgo.
Jackson.
Jasper.
Jefferson.
Liberty.
Matagorda.
Newton.
Nueces.
Orange.
Refugio.
San Patricio.
Victoria.
Wharton.

GROUP 2.

Anderson.
Angelina.
Archer.
Atascosa.
Austin.
Bandera.
Bastrop.
Bell.
Bexar.
Blanco.
Bosque.
Bowie.
Brazos.
Brown.
Burleson.
Burnet.
Caldwell.
Camp.
Cass.
Cherokee.
Clay.
Collin.
Colorado.
Comal.
Comanche.
Cooke.
Coryell.
Dallas.
Delta.
Denton.
De Witt.
Dimmit.
Duval.
Eastland.
Edwards.
Ellis.
Encinal.
Erath.
Falls.
Fannin.
Fayette.
Franklin.
Freestone.
Frio.
Gillespie.
Gonzales.
Grayson.
Gregg.
Grimes.
Guadalupe.
Hamilton.
Harrison.
Hayes.
Henderson.
Hill.
Hood.
Hopkins.
Houston.
Hunt.
Jack.
Johnson.
Karnes.
Kaufman.
Kendall.
Kerr.
Kimble.
Lamar.
Lampasas.
La Salle.
Lavaca.
Lee.
Leon.
Limestone.
Live Oak.
Llano.
McCulloch.
McLennan.
McMullen.
Madison.
Marion.
Mason.
Maverick.
Medina.
Menard.
Milan.
Montague.
Montgomery.
Morris.
Nacogdoches.
Navarro.
Palo Pinto.
Panola.
Parker.
Polk.
Rains.
Red River.
Robertson.
Rockwall.
Rusk.
Sabine.
San Augustine.
San Jacinto.
San Saba.
Shelby.
Smith.
Somervell.
Starr.
Stephens.
Tarrant.
Titus.
Travis.
Trinity.
Tyler.
Upshur.
Uvalde.
Van Zandt.
Walker.
Waller.
Washington.
Webb.
Wichita.
Williamson.
Wilson.
Wise.
Wood.
Young.
Zapata.
Zavalla.

GROUP 3.

Andrews.
Armstrong.
Bailey.
Baylor.
Borden.
Briscoe.
Callahan.
Carson.
Castro.
Childress.
Cochran.
Coleman.
Collingsworth.
Concho.
Cottle.
Crockett.
Crosby.
Dallam.
Dawson.
Deaf Smith.
Dickens.
Donley.
El Paso.
Fisher.
Floyd.
Gaines.
Garza.
Gray.
Hale.
Hall.
Hanford.
Hardeman.
Hartley.
Haskell.
Hemphill.
Hockley.
Howard.
Hutchinson.
Jones.
Kent.
King.
Kinney.
Knox.
Lamb.
Lipscomb.
Lubbock.
Lynn.
Martin.
Mitchell.
Moore.
Motley.
Nolan.
Ochiltree.
Oldham.
Parmer.
Pecos.
Potter.
Presidio.
Randall.
Roberts.
Runnels.
Scurry.
Shackelford.
Sherman.
Stonewall.
Swisher.
Taylor.
Terry.
Throckmorton.
Tom Green.
Wheeler.
Wilbarger.
Yoakum.

UTAH.

The territory forms one group.

VERMONT.

The state forms one group.

List of counties composing each state group, in alphabetical order—Continued.

VIRGINIA.

GROUP 1.

Accomac.	Isle of Wight.	Lancaster.	Norfolk.	Princess Anne.	Sussex.
Charles City.	James City.	Mathews.	Northampton.	Richmond.	Warwick.
Elizabeth City.	King and Queen.	Middlesex.	Northumberland.	Southampton.	Westmoreland.
Essex.	King George.	Nansemond.	Prince George.	Surry.	York.
Gloucester.	King William.	New Kent.			

GROUP 2.

Alexandria.	Caroline.	Fairfax.	Hanover.	Lunenburg.	Powhatan.
Amelia.	Charlotte.	Fauquier.	Henrico.	Mecklenburg.	Prince Edward.
Appomattox.	Chesterfield.	Fluvanna.	Henry.	Nottoway.	Prince William.
Brunswick.	Culpeper.	Goochland.	Loudoun.	Orange.	Spottsylvania.
Buckingham.	Cumberland.	Greensville.	Louisa.	Pittsylvania.	Stafford.
Campbell.	Dinwiddie.	Halifax.			

GROUP 3.

Albemarle.	Botetourt.	Frederick.	Montgomery.	Roanoke.	Smyth.
Alleghany.	Buchanan.	Giles.	Nelson.	Rockbridge.	Tazewell.
Amherst.	Carroll.	Grayson.	Page.	Rockingham.	Warren.
Augusta.	Clarke.	Greene.	Patrick.	Russell.	Washington.
Bath.	Craig.	Highland.	Pulaski.	Scott.	Wise.
Bedford.	Floyd.	Lee.	Rappahannock.	Shenandoah.	Wythe.
Bland.	Franklin.	Madison.			

WASHINGTON.

GROUP 1.

Columbia.	Spokane.	Stevens.	Walla Walla.	Whitman.	Yakima.
Klikitat.					

GROUP 2.

Chehalis.	Cowlitz.	King.	Mason.	San Juan.	Thurston.
Clallam.	Island.	Kitsap.	Pacific.	Skamania.	Wahkiakum.
Clarke.	Jefferson.	Lewis.	Pierce.	Snohomish.	Whatcom.

WEST VIRGINIA.

GROUP 1.

Barbour.	Grant.	Lewis.	Monongalia.	Pocahontas.	Taylor.
Berkeley.	Greenbrier.	Logan.	Monroe.	Preston.	Tucker.
Boone.	Hampshire.	McDowell.	Morgan.	Raleigh.	Upshur.
Braxton.	Hardy.	Marion.	Nicholas.	Randolph.	Webster.
Clay.	Harrison.	Mercer.	Pendleton.	Summers.	Wyoming.
Fayette.	Jefferson.	Mineral.			

GROUP 2.

Brooke.	Gilmer.	Lincoln.	Pleasants.	Roane.	Wetzell.
Cabell.	Hancock.	Marshall.	Putnam.	Tyler.	Wirt.
Calhoun.	Jackson.	Mason.	Ritchie.	Wayne.	Wood.
Doddridge.	Kanawha.	Ohio.			

WISCONSIN.

GROUP 1.

Brown.	Kenosha.	Manitowoc.	Ozaukee.	Racine.	Sheboygan.
Door.	Kewaunee.	Milwaukee.			

GROUP 2.

Buffalo.	Grant.	Pepin.	Saint Croix.	Trempealeau.	Vernon.
Crawford.	La Crosse.	Pierce.			

GROUP 3.

Adams.	Dodge.	Iowa.	Marquette.	Sauk.	Winnebago.
Calumet.	Fond du Lac.	Jefferson.	Monroe.	Walworth.	Waukesha.
Columbia.	Green.	Juneau.	Richland.	Washington.	Waushara.
Dane.	Green Lake.	La Fayette.	Rock.		

List of counties composing each state group, in alphabetical order—Continued.

WISCONSIN—Continued.

GROUP 4.

Ashland.	Chippewa.	Eau Claire.	Marathon.	Polk.	Taylor.
Barron.	Clark.	Jackson.	Marinette.	Portage.	Waupaca.
Bayfield.	Douglas.	Langlade.	Oconto.	Price.	Wood.
Burnett.	Dunn.	Lincoln.	Outagamie.	Shawano.	

WYOMING.

GROUP 1.

Laramie.

GROUP 2.

Albany.	Carbon.	Crook.	Johnson.	Sweetwater.	Uinta.